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Portuguese Junkers Ju 86K
Czechoslovak Fokker F-XI
Iranian F-86F Sabre
LVA 1917 (Part 1)
Exotic Birds 10

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Iranian F-86F Sabre (Hans Eriksson)



(Photo Belgium Air Museum via Leif Hellstrom)

An article on Iranian Sabres reproduced from the *Iranian Aviation Revue* begins on page 17.

SMALL AIR FORCES OBSERVER

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THE SYDNEY AWARD: This is a quarterly award given to a member who has consistently provided excellent articles for publication in SAFO. The awards consists of a one-year subscription to SAFO and is funded by the Richard E. Cross and Naidene Denton Cross Memorial Fund. The honoree this quarter is Rudi Hoefling for his contributions on Austrian aviation.

COVER COMMENTS: Potuguese Ju.86 '251' warming its engines before a training flight. If the machines were numbered in the order of their arrival in Portugal, this would be their first Ju.86. (Jaoquim Barros Prata). An article on the Junkers Ju 86 service in Portugal starts on page 13.



This photo of Iranian F-86F Sabres tanking off is to introduce the article on the Sabre in Iranian service. That begins on page. 17 of this issue. (via author)

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AUSTRALA

AUSTRALIAN PLASTIC MODELLERS ASSOCIATION (APMA, PO Box 51, Strathfield, NSW 2135; 4 issues airmail A$40. International payment is best handled via Paypal at iansharyn@bigpond.com.au). Web Site: www.apma.org. All articles have b&w or color photos and excellent scale drawings.

4/2016 (36 pages) "The Morane Saulnier MS 406" 18 pages inc. 31 color photos of exterior and interior details, a one-page cut-away drawing, 2 pages of 1/72-scale multi-view drawings, and 6 b&w profile drawings (France, Vichy, Turkey, Finland, Luftwaffe, & Croatia). "Armstrong Whitworth AW.16 in China" 7 pages on converting the 1/72-scale Matchbox kit of the Siskin into a Chinese AW.16 inc. 9 color photos of the model under construction and complete, 4 b&w profile drawings [prototype (3) & Nanking AF (1)], and 2 pages of vintage 1/72-scale 3-view drawings. Other excellent articles (but not of aviation interest) include: "MS Port Jackson", "Chinese AFV of 1937", and "L.P. No. 1 Carrier in NZ".

1/2017 (27 pages) "WW2 Luftwaffe Bombs" 4 pages with drawings and photos. "MS 406 Addendum" one page w/ 3-view drawing of Finnish MS 406. "Avro 504K, Bristol F2B & Sopwith Camel Replicas" 2 pages w/ 14 color photos. Articles of non-aviation interest are: "Sea Going Monitors Pt 1 M15 Class", "M15 Class Australian Connection 'Tiga'", "Fiat 656NM Autoblinda in the Italian Civil War", "Aussie Flaktruck", & "25mm Hotchkiss Armed Carrier".

AUSTRIA

OFH NACHRICHTEN (Oesterrichishe Flugzug Historiker, Pfenninggeldf 18/2/14, A-1160 Wien.

1/17 (44 pages) Color photos: Austrian Saab 35OE, Sikorsky S.70A, & Bell OH-58B.

FRANCE

AVIONS: Toute l'Aeronautique et son Histoire (Lela Presse, 29 rue Paul Bert, 62230 Outreau, France. 71 euro for 6 issues). Website: www.avions-bateaux.com. E-mail: contact@avions-

#216 Mars/Avril 2017 (98 pages) "Les marquages des apparels de la Force aérienne de l'Armèe rouge en 1941" 23 pages inc. 44 photos, and 36 color profiles [I-16 (17); SB-2 (9); MiG-3 (2); I-15bis (1); I-152 (3); DB-3 (3); & Yak-1 (1)], plus a multitude of "partial" color profiles. "MiG-29 'Fulcrum' et Su-22 'Fitter' polonaise à Malbork" 3 pages w/ 8 photos. "V-22 Osprey du rêve au cauchemard (1ere partie)" 12 pages inc. 27 photos. "Les Grumman F5F Hellcat dans la Seconde Guerre mondiale (6e partie) 1944, l'année decisive" 17 pages inc. 22 photos, 8 color profiles, and 2 maps (Truk Lagoon & Palau Island). "Les unitès de Bf 109E de la Luftwaffe en Yougoslavie (2e partie)" 14 pages inc. 27 photos and 3 color profiles. "Le Henschel Hs 126 en Espagne (1ere partie)" 14 pages inc. 39 photos. "Le premier Fokker D.VII capturè par les Alliès." 9 pages inc. 12 photos of D.VII carrying RAF roundels.

#217 Mai/Juin 2017 (98 pages) "Le crépuscule des géants: l'Arbitsstab Hptm Pöhl" 25 pages on the He 111Z and Me 321 inc. 41 photos and 8 color profiles [He 111Z (5) & Me 321 (3)]. "De l'armée impériale japonaise; 1re parte" 22 pages inc. 30 photos, five small 3-view drawings (Nakajimi KO-3, Ko-4, & NC; and Kawasaki KDA-5 & Ki-10), and 13 color profiles [Spad XIII (1); Nieuport 29 (2); Nakajimi NC (4); and Kawasaki KDA-5 (4) & Ki-10 (2)]. "Actualités: Le Tu-160 Blackjack & Pilatus PC-21" 8 pages inc. 16 photos [Tu-160 (8) & PC-21 (5). "Le drôle d'oiseau de Nungesser" 4 pages inc. 7 photos. [Ed: This 1923 amphibian has got to be the world's ugliest aircraft.] "La Grumman F6F Hellcat dans la Seconde Guerre mondiale 7e partie: 1944, l'annee décisive" 16 pages inc. 34 photos and 3 color profiles. " Pierre Malvosin: Le premier chasseur de l'aéronavale" 10 pages inc. 20 photos and 3 color profiles (Nieuport 17, Sopwith Triplane, & Spad 7. "Le Henchel Hs 126 en Espagne, du baptême du feu a la fin d'une espèce" 7 pages inc. 16 photos.

GERMANY

IPMS Deutschland Journal. Website: ipmsdeutscohland.de. All color. Subscription: Europe 36 E; others 40 E.

49/2 2016 (36 pages) "Lockheed Orion" 1/72 Special Hobby. 5 pages inc. 6 photos of the model completed in Varney Air Lanes colors [Editor: Not a small-air-force subject but, nevertheless, a beautiful aircraft.] "MiG-21UM" 1/48 Thumpeter. 5 pages inc.. 6 photos of the model under construction and 3 photos of the model completed in East German markings.

ITALY

JP4 Menslie di Aeronautica e Spazio. Via XX Settembre, 60-50129 Firenza, Italy. Emai1: jp4@dueservice.com. Website: www.ediservice.it.

Marzo 2017 (100 pages) Color photos: Angola AW 108E & Su-30K; Turkey ATR72-600; Saudi Arabia F-15A; Argentina IA-58 Pucara; Nigeria Alpha Jet; and Thailand F-5E. "Il MiG-35 prende il volo" one page inc. 3 photos. "Netz: gli F-16A/B di Israele" 8 pages inc. 23 photos. "JSF: il progresso si consolida" 2 pages inc. 5 photos. "Task Force Aviation: La componente aerea del KFOR" 6 pages on Kosovo Force inc. 8 photos (Croatia Mi-17, Slovenia Bell 412, Switzerland Super Puma). "DACT 2017" "DACT 2017" 4 pages inc. 10 photos. "Vittorio Meneghini" 2 pages inc. 6 phots (Italian Fiat G-52, T-6, & P-51). "Incidento Militari" one pages inc. 4 photos (Libya C-130; Ecuador SA315B Lama; Thailand Saab Gripen; & Japan F-15).

Aprile 2017 (100 pages) Color photos: Chile P-68 Observer; Germany CH-53; Kazakhstan Mi-35M; Tunisia OH-35D; and United Emirate KT-112. "Scuola AM Lecce di 213o e 214o Gruppo" 18 pages inc. 16 photos (MB-339). "Top Ace Challenge 2017" 2 pages inc. 7 photos (Singapore F-16 & F-15). "La Flugpolizei austriaca" 6 pages inc. 15 photos (Police EC 135, As 350, As 355, & Bell 206). Il ritorno del Javelin" 2 pages on the SM-27/36 projects for Israel inc. 8 photos "Vittorio Meneghini: Terza Parte" 2 pages inc. 9 photos (Italian T-33). "Incidenti Militari" one page inc. 5 photos (Botswana CASA C-212 Aviocar 300; Colombia Turbo Commander Jetorop 980 'FAC-5553'; Afghanistan MD 540G '216'; Indonesia Grob G120TP 'LD-1201'; & Colombia CIAC T-90C Calima 'FAC-2450').

The LVA in 1917

Part 1

Frits Gerdessen

At the start of 1917 the LVA was in a critical position. Of 30 Gnome rotaries received 10 had been written off and only 10 were still good enough for cross-country flights. Thus more interned aircraft had to be used on operations. Yet the future seemed better. An order for 20 aircraft in France was being prepared and there was also the possibility to obtain rotary engines in Sweden. It was also possible to obtain 10 Fokker D.III aircraft from Germany, and Trompenburg had started with a series of 20 Nieuport fighters.

On 6 January, the LVA was visited by a film crew to make a film about the armed forces. A number of aircraft was to be lined up and a cameraman was taken aboard Farman LA26. Among the aircraft filmed in action were BE.2C LA24, LVG B.II LA29 and the just interned Farman F.40 LA37.

On 29 December 1916, orders were issued to start training classes for technical instruction. This order was changed on 6 January, no doubt because motor specialist sgt. Verhagen (3 classes) was appointed member of the commission going to Sweden.

Thulin

Late in 1916 information had arrived that it might be possible to obtain aircraft and engines from AB Enoch Thulins Aeroplanfabrik (AETA) in Landskrona, Sweden. AETA was already producing for the Swedish armed forces.

On 5 January 1917, a meeting was held in the Naval Department; among the participants were the CMS (Chef Marinestaf, Naval Chief of Staff) captain W.J.G. Umbgrove and C.LVA kapt. H. Walaardt Sacré. It was decided to send a committee to Sweden, consisting of LTZ1 D. Vreede, OMSD3 P. Davidse, 1st Lt. F.A. van Heijst, chief mechanic sgt. J. Verhagen, and ing. H.A. Vreeburg. They had a free hand in dealing with the Swedes, and initially were to purchase ten seaplanes and 66 engines, as well as arms, tools and other suitable equipment.

The committee departed by train on 16 January and arrived at Landskrona (opposite København at the Öresund) the 19th. They met Dr. Enoch Thulin (Note 1) and visited the factory. Seaplanes were not available, and the Thulin A rotary engine (Le Rhône) delivered only 83 hp. These were adequate for the Farmans. More powerful engines were not available. The spark plugs were bad, but Dr. Thulin could not obtain better quality ones.

But, a new monoplane single-seat fighter plane, ordered by the *Flygkompani* (Swedish Army Aviation), was about to be finished,. This was the Thulin K. The prototype was ready on 1 February, and soon Lt. van Heijst was allowed to test it. He was quite satisfied with its performance.

Early in February, 21 Thulin engines were ordered, incl. two for immediate delivery. 75 more were ordered on 6 February. On 11 February, contracts for aircraft were drawn up with the result that the Navy ordered 10 K single-seaters, two uncovered K's (for spares), and three two-seat DK (Dubbelkommando) trainers. All these aircraft arrived in the summer of 1917 at Soesterberg. Later they were transferred to the naval seaplane base De Mok, which had an airstrip on the beach. Plans to ferry the K's from Sweden were abandoned. It would have been just possible with a landing in Denmark.

The Thulin K were serialled D1/10, and the Thulin DK were serialled B1/3. The uncovered K's were later serialled D11/12.

Later, more Thulin rotaries engines were ordered and nearly 300 were eventually delivered (including those in aircraft), and shared between the LVA and the Navy. Apart of replacing worn-out Gnomes, they were also used in the Trompenburg-Nieuport fighters and V.2 trainers.

The committee also visited *Södertelge Verkstaeder*, (Note 2) and were not at all impressed. They were also not impressed when visiting the army airbase at Malmslätt. Later, committee members went to Copenhagen and visited *Dansk Riffel Syndicat* (Madsen guns) and the *Nielsen & Winter* aircraft factory.

In April of 1917, the C.LVA reported that an acceptance committee had departed to Sweden where 5 engines and 3 aircraft were ready. 9 engines arrived in July and by the end of the year 51 had been

delivered. The C.LVA was quite content and further orders were prepared, also for 110 hp engines.

On 20 November 1917, another contract was signed with Thulin for the MLD (Naval Air Service): ten LA trainer biplanes. The MLD urgently needed training aircraft and could not wait for the Trompenburg V.2. The LA was a development of the L-type recce biplane, in use with the *Flygkompani*. The batch was ready in February of 1918 and quickly delivered (Note 3) However, the pilots were far from content. The LA's had serials C1/10.

With orders for 25 aircraft and over 300 engines Holland was Thulin's most important customer.

Nieuport

In the meantime, the C.LVA pondered how to continue, as there were no 110 hp rotaries available for the planned SLJ fighter and the eventual license construction of the Sopwith 1½Strutter. In February, he wrote in a letter: *Let us hope that a good wind will bring us a suitable plane to copy*. Within a few weeks his hopes were fulfilled with the arrival of two modern fighters with 80 hp rotary engines – the same engine ordered from Thulin. On 26 February, RNAS Lt. G.P. Powles with Nieuport XI s/n 3981 had to divert to Holland with a punctured fuel tank. On 1 March, Lt. F.V. Branford did the same with Sopwith Pup N6164 with battle damage.

The Nieuport was in good condition, but the Pup had somersaulted in the water and needed repairs. Now the C.LVA (promoted to major on 6 January) could make a choice. Trompenburg director Henri Wijnmalen came to Soesterberg to inspect the fighters and was prepared to build the Nieuport, in preference to the Pup. The Nieuport was test flown on 14 March and transported to Trompenburg on the 27th. In March, the Nieuports were ordered and delivery started for 30 January 1918.

Why Wijnmalen chose the Nieuport is not clear, but anyway this plane was in good condition, unlike the Pup which took much work before it was test flown on 26 April. In addition, it may have counted that Wijnmalen was francophile and the Nieuport was built to metric standards.

Great plans

Early 1917, plans were again drawn up for a wartime organization. The OLZ sent his plan to the MvO on 29 June, and it was included in the 1918 State budget. It appeared in the press on 21 September.

The plan envisaged 15 8-plane Vliegtuigafdeelingen (VA), thus 120 first-line aircraft:

6 Veld VA	6 recce and 2 fighters
3 Vesting VA	6 recce and 2 fighters
2 Artillery VA	6 recce and 2 fighters
4 Jacht VA	8 fighters

Thus 54 fighter and 66 recce a/c.
The reserve should be 100%.

By late 1918, this would require 102 fighters, 112 recce a/c, and 35 trainers; and by late 1919 116 fighters, 132 recce a/c, and 40 trainers. In addition material was needed to build 114 a/c in 6 months, with reserves for 2 x 144 a/c.

In peacetime, 96 pilots and 32 pupils as well as reservists would be needed. For the 56 fighters, 72 recce a/c and 20 trainers were needed. This required an initial purchase of 1013 engines. The purchase scheme was thus:

a. To be ordered at once, divided over 1917/1918

42 fighters with motors at ƒ 20.000	ƒ 840.000
57 recce a/c with motors at ƒ 30.000	ƒ 1.710.000
25 trainers with motors at ƒ 20.000	ƒ 500.000
1013 engines at ƒ 10.000	ƒ 10.130.000
Trucks: 4 storage, 1 repair, 4 tank, 2 kitchen	ƒ 183.000
	ƒ 13.363.000

b. To be ordered in 1918, divided over 1918/1919

42 fighters with motors at ƒ 20.000	ƒ 840.000
56 recce a/c with motors at ƒ 30.000	ƒ 1.680.000
15 trainers with motors at ƒ 20.000	ƒ 300.000
177 engines at ƒ 10.000	ƒ 1.770.000
Trucks: 4 storage, 1 repair, 2 tank, 3 kitchen	ƒ 158.000
	ƒ 4.748.000

c. Annual orders from 1920

28 fighters with motors at ƒ 20.000	ƒ 560.000
36 recce a/c with motors at ƒ 30.000	ƒ 1.080.000
10 trainers with motors at ƒ 20.000	ƒ 200.000
	ƒ 1.840.000

Trompenburg

Early in 1917, Trompenburg had little to offer, but it was deemed necessary that it be prepared to accept orders. Therefore, the Munitiebureau and Trompenburg signed the so-called Mother Contract,

for 155 non-specified automobiles and/or aircraft. This served as basis for the later contracts.

The LVA continued talks with Trompenburg about the SLJ fighter and the 1½Strutter, and in these talks there was much irritation. The end was that the Sopwith Baby would be completed as a seaplane once Trompenburg was ready with it. After testing by the Navy, it would be converted to a landplane at Soesterberg. But in March, the Nieuport XI was chosen for series production and the SLJ was dropped.

The C.LVA requested first 20 Nieuports, then 20 Sopwith Pups, and lastly 20 1½Strutters. Only the Nieuport was ordered.

Trompenburg was still busy with the V.1. This plane received new wings, survived the load tests and arrived back at Soesterberg on 15 February. The LVA fitted an engine. Taxying and flying trials on the 24th were an outright failure; the plane behaved like a rocking horse and the C.LVA described the tests as a circus spectacle. The V.1 was completely unmanageable and was returned to the factory for a lot of modifications. It came back on the 27th of March and was test flown on the 31st by Van Heijst. After minor modifications, the plane flew satisfactory on the 5th of April, and it was decided to test it against the Sopwith Pup. That was done at Ede on 23 May. The top speed was 139 km/h and the climb to 4000 m 20,1 min. For the Pup this was 160 km/h and 10,2 min. After the testing, Lt. van Heijst gave an impressive aerobatics demonstration with the V.1, including loops and tail slides. Yet it was clear that the good-looking 80 hp V.1 had no future, It ended up as trainer with the MLD where an 130 hp Clerget was fitted. Its serial was A7, later A10.

The expansion plans meant that Trompenburg would have to produce the required aircraft. On 7 August, Trompenburg announced in a meeting with the MvM (Navy), MvO (War), MvK (Colonies) and the Artillerie Inrichtingen it was busy with the design of a trainer and a fighter. Already on 7 November, the Colonial Office ordered 2 trainers, 6 fighters and 6 recce a/c as well as 20 130 hp Clergets. The Munitiebureau informed Trompenburg 13 November that this order would be incorporated in the MvO order. Eventually 78 V.2 trainers, 98 V.3 fighters (20 for the MLD) and 118 V.4 recce planes were to be ordered.

Since the 130 hp Clergets were not available from abroad, Trompenburg offered to produce these themselves. The LVA provided an interned Clerget. Trompenburg had already produced car engines and had excellent machinery suitable for the job. (Note 4) Factory personnel discovered a quantity of suitable steel in Rotterdam, which had been stranded there at the outbreak of war. As there was no rolling mill in Holland, the Amsterdamsche Droogdok Maatschappij (Amsterdam Dry Dock Company) undertook to forge the steel blocks to the required dimensions. The quality of the forged steel turned out to be quite good. Later press reports about “inferior material” were fully unfounded. The first engine was tested in June 1918 and performed well. 200 were ordered and delivered in 1919, but only a few were used, in the V.1, V.3, and a Fokker D.VIII.

Fokker fighters

The C.LVA decided to try to buy aircraft in Germany, and on 27th February asked the Albatros Werke for 10 fighters of the latest type. Albatros politely replied that only the Prussian War Ministry could allow this, and that the chances were minimal.

On 8 April, Lt. J.C.G. Duinker departed on a study trip to Berlin. (Note 5) He returned on 25 May. (Note 6) He reported by letter on 7 May that an A-type *Kampfeinsitzer* might be available. This turned out to be an unarmed Fokker D.III fighter biplane with 160 hp Oberursel,. Lt. Duinker hoped the Dutch industry might supply the armament. He had studied the gun synchronization.

The costs were estimated as:

10 aircraft at RM 16.000	RM 160.000
20 160 hp rotaries at RM 21.000	RM 420.000
20 sets of spares at RM 3.000	RM 60.000
	RM 640.000

The exchange rate was ƒ 1,-- = RM 1,70.

The C.LVA informed the OLZ on the 14th and advised to continue, as a French order would be late. He increased the quantity of spares and the total sum became RM 700.000.

On 14 June, the C.LVA was informed that the purchase was permitted, without guns. Acceptance could start on 7 July. Lts. Versteegh and Duinker were to go to Germany, but it was not until 8 August that they could depart. The also had to try to obtain 40 recce aircraft and materials not available in Holland: steel tubes, cables, wire, emaillite, etc. Duinker returned on 16 September.

Lt. Versteegh reported by letters to the C.LVA;, the first on 15 August. In these letters, he usually had greetings for Mrs. Walaardt Sacré, who was a kind of "mother" for the junior officers and well-liked. Versteegh visited Grossenhain and Adlershof (Technical Centre of the *Fliegertruppe*) and reported on other Fokker aircraft: Dr.I and the experimental types V.5, V.6 and V.7.

On 27 August, Versteegh test flew six D.III's at Grossenhain, which were then sent to the Schwerin factory for overhaul. On the 30th, he accepted at Schwerin 4 *Reparaturflugzeuge*, the repaired aircraft. On 1 October, Versteegh was back in Holland with a trainload of ten D.III's, among them the prototype 350/16. Assembly started at once and on the 11th Versteegh made the first test flight, with loops. On 19 and 23 February 1918, spares and spare engines arrived, as well as ten cameras. Soon, other pilots flew the D.III. On 26 November, four were in the air. At least eight pilots are known to have flown the D.III.

In this transaction, the Dutch military attaché, lt.col. Müller Massis, was involved. He reported in September to have asked for six more D.III's and six spare engines. This fell through. The D.III's were withdrawn and scrapped. In October lt.col. Müller Massis wrote that a trade attaché should be charged with this kind of transactions. For a military man this was too complicated. Germany required compensation in certain materials. He also mentioned that Germany was prepared to export 40 recce aircraft, on condition that Holland would provide 5000 horses. These 40 aircraft were Rumpler C.VIII. Data are lacking about the date the contract was signed. They were delivered in 1918.

Aircraft losses

Late 1917, the LVA lost both Albatros B.II (LA31 and LA39) in crashes. LA39 collided on the field with the Colonial Farman K4, which was wrecked beyond repair. Also the LVG B.I LA25 crashed. There were no casualties. The first Fokker, LA34, was already w/o (with motor) on 24 March when Lt. Duinker took off with a tail wind. 1½Strutter LA33 was w/o in February as the wings of 1½Strutter LA38 would not fit - both planes were from the same Sopwith production batch!. It was decided to convert LA33 into a twin-engined bomber. (See SAFO #157)

One officer, Lt. Dooijewaard, was killed when hit by the propeller of LVB B.II LA29.

Serial system.

Since 1913, LVA aircraft received a more-or-less chronological serials, consisting of the letters LA and a number. In the fall of 1917, LA50 (Gotha G.IV) had been reached and the system was deemed impractical. Serials LA9, -21, -24 and -34 had been re-used. A new system was worked out and introduced mid-December 1917. Serials were given per category:

1- 10	Taxying trainers
11-199	Trainers
200-399	Fighters
400-699	Recce a/c
700-	Bombers
900-	Miscellaneous, soon changed to 800-

At this time, 52 aircraft were on charge, 35 with an LA-number, 17 still with foreign serials (incl. 10 Fokker D.III).

As the orders for the renumbering have been lost, we are quite unsure about the connection between old and new serials. It seems that e.g. de Farmans and DFW's were not renumbered in the LA-sequence.

The serials were now painted in black low on the aft fuselage (or on the nacelle with Farmans). They had a prefix and a suffix.

The prefix indicated the factory: AL = Albatros, D = DFW, F = Fokker, HAN = Hannover, etc.

The suffix specified the motor: R80 = Le Rhône 80 hp, T80 = Thulin 80 hp, M160 = Mercedes 160 hp, B220 = Benz 220 hp, etc.

A full serial is thus:

A21T80 = Avro 504 with Thulin 80 hp, AEG403M160 = A.E.G. C.IV with Mercedes 160 hp.

This system was, with some changes, used until 1940.

Detachments

When the hangar at Gilze Rijen collapsed during the storm of 24 December 1916, the detachment was withdrawn. Already on 14 June, the EaI at Breda sent the C.LVA a drawing and specifications. It seems that by late 1917 the new hangar was ready, but a new detachment was not sent. A duty mechanic was posted to serve visiting aircraft.

In the collapsed hangar a lot of material remained: an Antoinette once owned by ir. G.P. Küller, a Van der Burg monoplane, remains of a Van Meel. Engines, and parts. All this was bought for *f* 1.400 by J.D. Carley and Theo Slot to start a business at Ede. On 1 August, Carley asked the C.LVA for fuel, which was apparently granted.

The Kemperheide and Vlissingen detachments were continued, the former with only Farmans, as far as known. Which aircraft were posted is not recorded, except when there was an accident reported in the press. Farman LA20 was at the Kemperheide in May-July, and LA4 in November. LA11 was at Vlissingen in May.

The regular postings of pilots and observers were discontinued at Vlissingen. Lt. J.N. Wallast arrived there with Farman LA21 on 7 June, but as that plane had technical problems and was returned to Soesterberg. He returned on 29 September with Farman F.40 LA37. Plane and pilot remained there for a year. Lt. Wallast became responsible for salvaging interned aircraft in Zeeland. LA37 had been used to test the Groeneveld Meijer bomb gear, which was now ordered: 40 for the LVA and two for the Navy. (Note 7)

Pilot training

After sgt. J.W. van der Drift was admitted to flying training in October 1916, more NCO pilots were admitted to flying training: In August, seven sergeants, two corporals, and one private. The latter, J. Tjaarda, had British license #2913, issued on 17 May 1916. Like Van der Drift, he did not receive a Dutch FAI license. Of the others, four did not make it. Sgt. P.J. van der Griend later became flight instructor, and sgts. Hofstra and Sillevis joined KLM. The latter served as KLM captain until well after WW2.

By the end of the year, the LVA had 19 pilots, including one NCO, as well as eight pupil pilots.

Operations

The engine situation, fuel shortage, and bad weather in the first three months of 1917 were such that the LVA did not take part in any army exercises. The rest of the year, the LVA occasionally joined army operations. Only five Farmans were available for cross-country flights, including those at Vlissingen and Kemperheide. The interned engines were spared as much as possible.

The Kemperheide detachment often co-operated with the artillery, and the “roetapparaat” functioned satisfactorily. This was also used at Vlissingen and the LbO. (Note 8) Experiments with wireless for artillery spotting in the LbO failed. The wireless sets were not yet reliable.

Radio

In January, the LVA received two transmitters, which were fitted in aircraft. A receiver set came later and skilled personnel arrived. The C.LVA asked for more radio specialists, and at last in June an officer was posted in charge of the wireless: res.lt.ir. M. Polak. By the end of the year, the wireless performance was satisfactory and the roetapparaat, which had been a useful reserve, could be retired.

Photography

The LVA had ordered some cameras in 1916 which arrived in March 1917. In addition, three cameras were interned and three more were ordered from Switzerland. The Photo Section now had sufficient equipment to carry out experiments, and the results were excellent. Lt. R.I.M. Meltzer, a photo specialist, was appointed to command the unit.

Sports

Sports were important among the pilots. In May 1917, the C.LVA ordered that all pupil pilots had to train for the sports certificate. The athletic Lt. A. Plesman, later KLM director, was trainer. (Note 9) Football was important too. Lt. A.K. Steup was a keen player, and of course also Lt. Plesman. Observer Lt. A.C. Perk had taken part as a fencer in the 1912 Olympics. And there was the top-ranking horseman Lt. A. Coblijn.

Miscellaneous

Fuel and oil were in short supply. Sometimes, LVA personnel were approached to sell some litres. Those who did were usually apprehended, court-martialed, and jailed. Willem Warnaar mentioned such a case: While returning with the Sopwith Pup (interned 1 March), on the ferry to Gorinchem, a gentleman with a big car offered a good price for fuel from the plane. Warnaar refused , but agreed to keep silent, and was rewarded with a cigar. Some weeks later, a number of civilians was at Soesterberg and Warnaar met the same gentleman. His keeping silence was again rewarded with a cigar.

In August 1917, lt. van Wulfften Palthe was court-martialled as he had hit a captain in a bar in Den Haag. The captain had started investigations of Van Wulfften Palthe with the effect that he could not take leave for his medical studies and his promotion was postponed. Van Wulfften Palthe was acquitted.

Marine Luchtvaart Dienst

The navy needed a seaplane base and selected the inlet De Mok on the island Texel just opposite the naval base at Den Helder. The base, commissioned on 21 August, had large hangars, slipways, etc. Next to it was a sandy airstrip (the beach). The Naval Air Service (MLD = Marine Luchtvaart Dienst) was officially founded on 18 August 1917. LTZ1 D. Vreede was appointed commander.

When De Mok was opened, only one seaplane (FF 29 R-1) was airworthy; others were in repair or at Schellingwoude. Thulin K D-1 had somersaulted on the beach on arrival on 24 July and was in repair. It took some time to get more (also recently interned) aircraft operational.

In 1917, the MLD interned six intact seaplanes, the most important being two FF 33J, one FF 33L, and a Rumpler 6B1. The German seaplanes were the best of their class and were soon bought. A twin-engine Gotha WD 11 bomber floatplane and a Short 184 ended up as hangar queens and were not bought.

The FF 33J's and the Rumpler had stranded at the coast. One FF 33J yielded a Telefunken radio set with tubes, which were soon copied by a Dutch factory. The Gotha and the FF 33L were apprehended by the navy off Vlissingen within Dutch waters and captured after some shooting. The Short was rescued from the North Sea. Its crew was soon released as being shipwrecked sailors.

Also, the Martins arrived in August from Trompenburg at Schellingwoude. Initially only both R's (H1 and H2) were flown to De Mok. The four S's (J1-J4), less seaworthy, remained at Schellingwoude. By this time the MLD had at Soesterberg: Farmans A1/3, Thulin DK's B1/2 and K's D2/3. This year Trompenburg built three more naval Farmans, A4/6.

The MLD remained at Soesterberg, until in 1918 the airfield De Kooij, south of Den Helder, was taken in use.

Internings

During 1917, the Cadzand factory started limited "series production": three highly regarded Sopwith 1½Strutters and four DFW C.V recce planes, one of the best German types. Also a German Gotha G.IV bomber was interned intact (and four more were wrecked). (Note 10) This G.IV was interned on 18 August, but crashed on take-off for its first test flight on 18 October, the crew being unhurt. One of the interned Gothas (1065/16) crashed in the Zuiderzee on the night of 28/29 September, after having been intercepted over Belgium by HP O/100 3134 of No. 7 Sq. RNAS. This was discovered some days later when fishermen got wreckage in their nets and found bodies of the crew. (Note 11) An RFC DH.4 was burned (beyond recognition) by its crew. In all, the LVA obtained 19 mostly intact aircraft in 1917.

From mid-1917, most proposals by the C.LVA to buy interned aircraft were not approved. In 1917-18 only a few were bought (Bristol Fighter, Spad S.VII, and SE.5A). What was usable was just impressed.

Aircraft landing in Western Zeeuws-Vlaanderen did so often at the wrong place at the wrong moment. On 13 March, a German plane landed in Holland and was promptly shot at by infantry. It took off again and landed just over the border. (Note 12) The Dutch troops saw that the pilot was carried off by ambulance and later it was heard that he had died in hospital.

On 14 June, DFW C.V 5928/16 (later LA43) was interned at Axel. The story goes that they landed for orientation, and take-off was impossible due to the soft field. It is also said that take-off was prevented by a soldier on leave. This DFW was the last German plane that was bought.

The LVA lacked personnel to man the increasing inventory, especially in 1918 when more German and French aircraft were acquired. In addition, lack of hangar space became a problem.

On 23 August, Rumpler C.Ia 968/17 landed at Elburg. The pilot had lost directions and the fuel had run out. Kpt. Van Heijst flew the plane (later LA49) to Soesterberg. The only occasion that an interned plane could be flown out.

On 28 August, Albatros C.X 5992/16 (later LA48) landed fully intact just inside Holland at Valthermond. This plane had landed at Ahlhorn on a test flight and went on to FEA 5 (*Flieger Ersatz Abteilung* 5). After take-off Ahlhorn asked FEA 5 to arrest pilot Gottlieb, as he had taken off without permission.

On 7 August, a remarkable interning occurred in the Schelde off Vlissingen. Two Belgians set off at 0600 hours with a rowing boat (VL59) to catch shrimps. Offshore, noticing two German aircraft overhead, they took in their nets and started rowing back towards shore. Then, FF 33L #938 alighted alongside and *Vizeflugmeister* Walter Maukisch stepped over to VL59 and ordered the men to steer for Belgium. The men kept course to the Dutch coast.

Maukisch, now *Prisenoffizier,* did not realize what was happening, but the pilot of #938 overhead kept indicating that VL59 was going the wrong way. Meanwhile, the crew of HMS *Donau* had observed that something was out of order. Thus, Maukisch got a big surprise when the *Donau* suddenly came alongside. He was interned and later got a job at the German embassy.

On 22 November, an inverted interning occurred. Sgt. J.W. van der Drift in Farman LA18, on a flight for his Military Brevet, was last seen flying south over Tilburg. Next day word came that he was in Antwerpen. The LA18, which had broken a landing gear leg, was handed back at the Nispen border post on 28 November.

Combat over the North Sea off the Belgian coast resulted in dead bodies washed ashore in Zeeland. On 21 September, the body of Leutnant Franz Pernet was found at Wissekerke. His AEG D.I fighter 4400/17 (a prototype) had been shot down by Lt. Keith Park (Note 13) and his gunner M. Lindfield in a Bristol Fighter of RFC No. 48 Squadron. This was Keith Park's 13th victory. Soon after burial (with full military honours) Pernet was reburied in Berlin. He was a stepson of *Feldmarschall* Ludendorff. There were more cases of German airmen brought home and buried by their relatives.

The bodies of British airmen also washed ashore. On 28 September, RNAS No. 11 Squadron lost Camel pilots Fl.Sub.Lts E.J.K. Buckley and K.V. Turney. They must have collided when flying from England to France. Buckley washed ashore at Renesse (Zeeland) and Turney at Knokke (Belgium).

In all 24 landplanes were interned in 1917: 16 German (4 Gotha G.IV wrecked), 6 British (1 DH.4 wrecked), and 2 French.

In addition, German balloons arrived. In stormy weather, German observation balloons occasionally went adrift. Usually the crews used their parachutes in time, but on 8 November one German and on 7 December two others abandoned 'ship' at Zeeuws-Vlaanderen without parachutes. They were interned, but there was discussion whether this was correct as the circumstances were beyond their control.

On 7 November, three balloons, already abandoned by their German crews, drifted in over Zeeuws-Vlaanderen. People tried to grab the trailing cables, risking their fingers. One entered at 1130 hours and the trailing 1000 m cable caused much havoc. Due to low clouds, the balloon was often out of sight. Telephone and electricity lines were cut, roofs damaged, etc. At 1430 hours, the balloon was just north of Soesterberg. There someone succeeded in winding the cable around a tree. A passing company of soldiers threw themselves on the cable in an attempt to draw the balloon down. However, one soldier held on too long and fell 25 m to the ground and was hospitalized. The other soldiers started shooting and an aircraft circled around to see whether crew were still aboard. At 1630 hours, the balloon was down. The basket yielded maps, signal flags, an altimeter, and (Dutch) bullet holes. In other cases telephones, compasses, and binoculars were found.

A most impressive interning occurred on 13 December The British Coastal airship, s/n C26, from Pulham in Norfolk with a 5-man crew, departed at 0636 hours on the 12th to look for the missing C27 (shot down on the 11th by Oblt.z.See Friedrich Christiansen). (Note 14) Around noon, the front engine of C26 quit, and they steered towards home, until at 1700 hours the rear engine quit, followed immediately by the W/T set. C26 drifted east over the North Sea, hitting the waves until the bomb and ballast were jettisoned. At 0230 hours, the sea was no longer heard and they assumed they were over land. Gas was let off and a grapnel lowered. When this caught hold, four crew jumped from 10 m. They were at Poortugaal, south-west of Rotterdam. They were soon taken care of and brought by car to Rotterdam. W/op Warman was too late to jump and went up with the distorted airship. He jumped when near the ground some time later and fell in a ditch. He was extremely lucky to be near a workers' hut, just south of the Merwede river opposite Sliedrecht. The men rowed him over to Sliedrecht and he was brought by train to Dordrecht. His story was not believed.

In the meantime, C26 drifted on, causing havoc, and losing another bomb north of Sliedrecht. It ended up at Eemnes, north-west of Amersfoort, on baker Van Heek's roof.

C26 was dismantled and in three trucks brought to Soesterberg. The car was damaged, but the engines intact. On board were found two Lewis guns, two baskets with pigeons, two firebombs, a wireless set with broken tubes, the logbook, and secret maps. The W/T set was repaired with Dutch radio tubes and successfully tested. The fabric was (it is said) used for raincoats. Baker Van Heek later received *f* 600 from the British government for his damages roof.

Building activities

In 1917, more buildings were erected including a number of hangars and houses for married NCO's. Workshops and other buildings were enlarged. More barracks buildings were needed for the expanding number of personnel, and two hangars were provisionally used as quarters.

Netherlands East Indies

In March of 1917 the NEI mission came home from the USA: capt. ~~lt~~. J. Engelbert van Bevervoorde (with his newly-wed wife), capt. C.L. Vogelesang, lt. Ter Poorten, and a mechanic. LTZ H. Steensma and ir. G.P. Küller (Note 15) also returned. Both had married in the USA, Steensma on 12 March in Los Angeles to Jessia Kennedy Brown, Küller on 6 March in New York to Elsa Grace Pickhardt.

They also brought back 10 Martin aircraft: 8 R and 2 TT. These aircraft were sent to Kalidjati airfield (north of Bandung), where a flying school was started. Soon some cross-country flights were made. Capt. Vogelesang took over command from capt. Visscher.

By the end of the year, the Proefvliegafdeling had six pilots, and observer training had started. Four pilots trained at Soesterberg.

In all the Proefvliegafdeling received 16 Martin aircraft: 2 TA (#1/2), 6 TT (#3/6 and #15/16) and 8 R (#7/14)

Frits Gerdessen (#12), Netherlands.

Notes

1. Enoch Leonard Thulin (15 September 1881/14 May 1919) studied mathematics and physics at Lund University and aviation in Paris, becoming a Doctor. He learned flying in France (license #1314) and received the Swedish FAI licence #10. In 1914 he started his factory. He was killed in the crash of his personal Thulin K.
2. The Södertelge Verkstaeder was headed by *Flygbaron* Carl Cederström, who held Swedish licence #1.
3. The work on this order was recorded in his notebook by Palle Mellblom, chief carpenter. Test flights were made by lt. Nils Kindberg. When the Thulin factory was closed, Mellblom and a colleague took over the inventory and in 1921 started a carpentry factory, which still exists in Landskrona, at Enoch Thulin vägen 15 (Enoch Thulin street). Nils Kindberg (1892-1984) in March 1918 flew a Thulin plane to Finland. Later lt.col. Kindberg became the Swedish AF chief historian.
4. With the advanced equipment, acquired just before the war, Trompenburg often produced special parts for the armed forces.
5. Duinker stayed in Hotel Bristol at Unter den Linden, Fokker's regular hotel just opposite Fokker's *Zentralbüro*. That Fokker and Duinker met is most likely, even that Duinker stayed there as Fokker s "guest".
6.. This kind of trips in wartime required a lot of preparation, but could yield much information. For example, foreign officers in Germany could often visit the fronts.
7. SAFO #141, "Holland's top secret bomb sight".
8. Legerplaats bij Oldebroek = Oldebroek army camp and artillery shooting range.
9. In the first years of KLM, Plesman had his (res.sgt.) pilots doing runs around Schiphol. Plesman had served with the Wielrijders, soldiers on bicycles. These guys did easily 100 km a day on bad roads. Later their cyclemounted brass-band was famous.
10. These internings are described in SAFO 139.
11. These were the first crewmembers of an interned aircraft that were killed. Along with other German casualties (85 in all in WW.1, many bodies drifted ashore). During WW.1, they were buried at local cemetaries. After World War 2, they were reburied in a special section of the large German war cemetary at Ysselstein (over 30.000 graves).
12. In fact, the wire (De Draad). In 1915, the Germans had set up an electrified barbed wire fence along the Dutch-Belgian border. At certain places gates were built. The idea was to prevent unauthorised traffic (deserters, refugees etc.) and smuggling. Many were killed when trying to cross.
13. Keith Rodney Park (1892-1975), as Air Vice Marshal, commanded RAF No. 11 Group during the Battle of Britain, and was posted away (as Air Chief Marshal Hugh Dowding) after the Battle was won. Later he commanded the RAF at Malta.
14. General der Flieger Christiansen was *Oberbefehlshaber der Wehrmacht* in Holland in WW2.
15. Ir. G.P. Küller (28-06-1881/24-01-1959), a mechanical engineer, had French FAI #46. He flew demonstrations in Holland, France, Malaya, and NEI. In late 1912 decided to quit flying, considering it expensive and dangerous. In 1913/14 he worked with a machine workshop in NEI and in July/August 1914 offered his services as a pilot to the NEI Army. As there were no aircraft available, this came to nothing and Küller was back in Holland early 1915. Then he joined Trompenburg. He departed as Trompenburg representative with LTZ H.G. van Steijn to the USA in order to buy aircraft for the Navy. In 1917. he returned with LTZ Steensma to Holland. Both had married in the USA, Steensma on 12 March in Los Angeles to Jessia Kennedy Brown. Küller on 6 March in New York City to Elsa Grace Pickhardt. About his further activities nothing is known.

The photos for LVA 1917 will appear in Part 2.

The Junkers Ju.86K-7 in Portugal

José Matos

[Editor's Note: This article first appeared in the German-language magazine Flieger Revue X, April 2016. The author sent an English-language manuscript and additional photographs for publication in SAFO. The author, a well-known Portuguese aviation historian, is looking for someone to collaborate on a book about the A-7 Corsair II. The project is an 8,000-word book with a maximum of 2,500 words reserve for Greece, Portugal and Thailand combined - with less emphasis on Thailand given its short use of the type. If you're interest I can provide you with a copy of his curriculum vitae - or you can contact Jose directly at josematosaugustomatos@outlook.pt.]

In the late 30s, relations between Portugal and England were strained due to the Portuguese involvement in the Spanish Civil War on the side of the nationalist forces of Franco. Because of this involvement, London was reluctant to provide military equipment to Portugal being afraid that it would be diverted to the Franco forces, which would lead the Lisbon government to strengthen relations with the Hitler's Germany.

The British Government's stand backfired when, in 1936, the Portuguese Government, led by Antonio Salazar, turned to Germany for military equipment. A Portuguese military commission visited the Junkers company in December 1936 and was very impressed with the performance of the new Junkers bomber - the Ju.86. This good impression led the Portuguese War Ministry to buy ten aircrafts formalizing the order on 15 September 1937. The designation Ju.86K-7 was given to this aircraft powered by two BMW 132 engines with 790 hp each.

With the purchase contract signed, in March 1938, the Portuguese Ministry of War appointed a team of pilots and technicians to undertake conversion to the aircraft in Germany. The pilots were headed by Major Pinheiro Correia and the team arrived in Berlin on 30 March. The pilots and technicians were divided in two pilot groups and two technical groups and they were sent to different places. The training in Germany does not always go well. The first group of Portuguese pilots were sent to Brandis, where the Luftwaffe has a training school. However, because they had not been informed they were going to receive the Portuguese pilots, the Germans have no prepared training plan. In addition, the Portuguese would have to tain on a different Ju.86 model – the D version) equipped with diesel engines rather than the BMW gasoline engine that equipped the Portuguese Ju.86K-7 version. Another problem was that the Germans Ju.86 were equipped with older avionics than the Portuguese aircraft.

Pilot training with this first group went on for seven days and the navigation training for only four days, which was too short for the Portuguese pilots. Outraged by the situation, the Portuguese protested and threatened to go back to Lisbon, leading the Germans to promise better training conditions for the second group of pilots.

This group trained in Tutow, using a Portuguese Ju.86K-7 diverted to this base to be used in the training. After the Portuguese protests, the training of the second group involved in various modes of flight and weapons leaving the pilots satisfied.

The arrival of the aircraft

The first Ju.86K-7 arrived in Portugal on 12 April, 1938. It landed at Tancos air base (BA3) piloted by a German pilot. The remaining aircraft arrived in April and May 1938, and in the summer of that year; the ten bombers were already at Tancos forming a combat group. However, the intention was to transfer these bombers to the new air base at Ota (BA2) which had just been built.

While Ota was being prepared to receive these new aircraft, the Ju.86 were used for training at Sintra air base (BA1). Finally, in the early 1939, the new bomber is transferred to BA2 at Ota forming a combat group for day bombardment (GBD). The GBD consisted of two squadrons (number 1 and 2) each with five Junkers.

With the beginning of the war in Europe, the GBD faced a shortage of fuel. After 1940, the Salazar government imposed rationing, and the Ju.86 flew very little this year. However, it was still able to support the Army in various military manoeuvres, namely in September 1940, when photographic reconnaissance missions were made.

First loss

On 15t February 1941, Portugal wa hit by a severe storm that left a trail of destruction across the country. The roof of the main hangar at BA1 collapsed, and several aircraft parked inside including Ju.86 '257' were destroyed. This was the first loss of a Portuguese Ju.86, and their numbers was now reduced to nine aircraft.

A few months later, five Ju.52 bombers were deployed to the Azores Islands. Because fuel had to be diverted to Azores, little was left for the other aircraft leading to a further reduction in Ju.86 activity at Ota,. The planes flew sporadically until February 1944. By that time, all Ju.86 had passed to Squadron 2 of the GBD commanded by Lieutenant Simão Portugal. At this point, another problem arose for the Portuguese aircraft - the lack of spare parts from a war-ravaged Germany. On 6 May, 1944, an air festival took place at Ota, but the Ju.86 were only displayed on the ground.

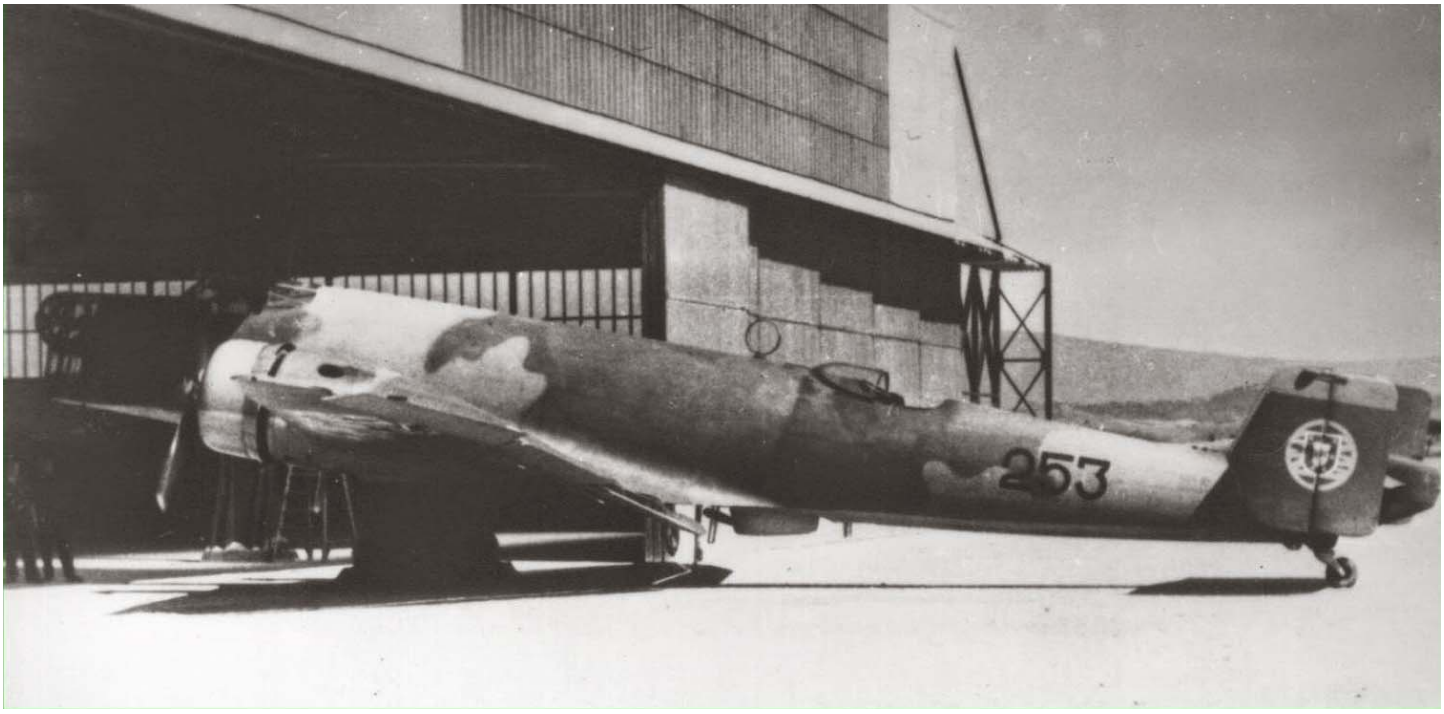
The post-war period

After the end of World War II, the Portuguese Ju.86 returns to flight allowing the certification of new twin-engine pilots. However, on 11 July, 1945, Ju.86 '256' suffers a serious accident while it was piloted by Major Rogério dos Reis Temudo. The plane on a photographic mission in the central part of the country in a mountainous area near Castro de Aire. When entering a valley in the Montemuro Mountains, the Ju.86 quickly lost altitude and crashed Fortunately there were no casualties.

In addition to the pilot, Major Temudo, the crew consisted of Sergeant Jesus de Almeida and Lieutenant Barros Prata in the dorsal turret, who managed to escape after the crash. The debris would be later transported by local residents.

After this accident, the Junkers were grounded until August 1946. After then, there was a slow return of the Ju.86 to service, but always with a limited number of flights. The last flight took place on January 18, 1951 with Ju.86 '260' piloted by Lt. Col. Bentes Pimenta. It was the end of the Ju.86 service in Portugal.

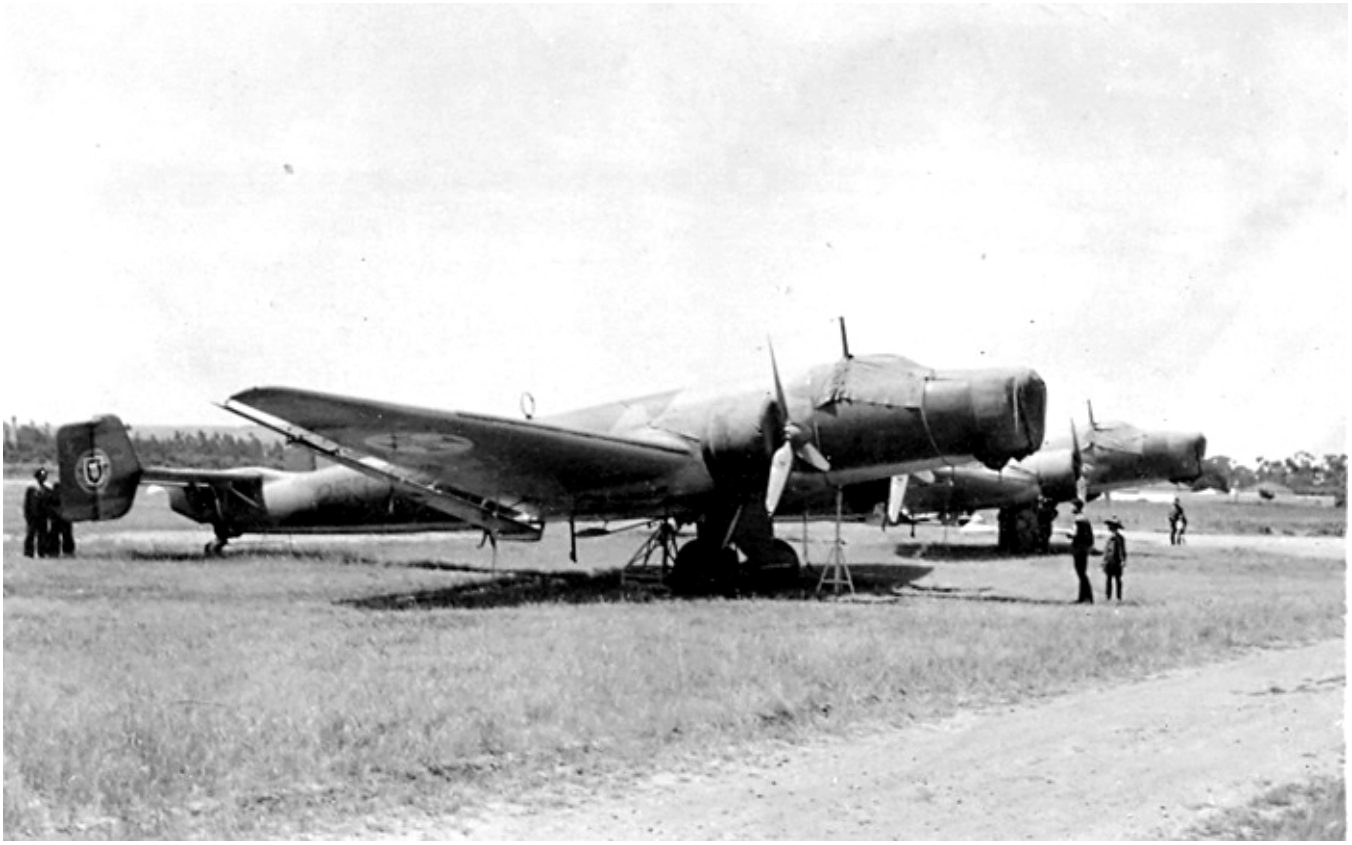
José Matos, Portugal.



Presumably for maintenance work, '253' is moved into a hangar at BA2 Ota. The lower gun turret is in the retracted position when the aircraft is on the ground. (Historical Archive of the Air Force)



Ju.86 at an air show at BA2 Ota on 6 May 1944.. Because of the shortage of fuel, the machines were left on the ground. (GC6 Musu do Ar)



Two Ju.86 at BA2 Ota with their cockpits protected by canvas. (Historical Archive of the Air Force)



During the air show at BA2 Ota on 6 May, 1944, the Ju.86 of the 2nd Bomb Squadron were on the ground for inspection. (Historical Archive of the Air Force)



On 11 July, 1945, '256' crashed in the Montemuro Mountains. The machine was completely destroyed, but the crew were uninjured. (Jaoquim Barros Prata)

Iranian F-86 Sabres

Leon Manoucherians

[Editor's Note This article was first published in Iranian Aviation Review #9, and is reproduced in slightly shortened form with the permission of the author and publisher.]

Previously, little has been published of Iranian involvement with the Sabre; many are keen to ignore the IIAF's use of large numbers of F-86Fs, which spanned over a number of years, quite separate from the equally large number of ex-Luftwaffe Canadair Sabre Mk.6s, which were eventually passed on to the Pakistani AF. Often, their stories are intertwined, but it is important to explain some of the reasons for what appears to have been a well-generated 'smoke screen' to cover Iranian Sabre operations. This article will examine the service history of Iranian Sabres in 3 parts: the North American F-86F, the Congo Mission, and the Canadian CL-13 Mk.6 Sabres.

The Background:

Despite the delivery of 75 F-84G and 25 T-33 jets to IIAF through the Military Assistance Program (MAP), the former Shah of Iran was not satisfied with the level of U.S. assistance in the modernization of his air force to counter the threats of the neighboring Arab countries, who were backed by the Soviet Union.

According to 1957 U.S. State Department documents, the Shah was asking for more sophisticated aircraft for delivery by the end of 1959, such as the North American F-100 Super Sabre and the Lockheed F-104 Starfighter which was still in development.

However, the U.S. Defence Department, relying on the reports of the ARMISH-MAAG advisory group stationed in Iran, did not find the Iranian Air force ready to take any aircraft beyond the first generation jet fighters.

In 1958, IIAF personnel consisted of 231 officers, 213 pilots (including 94 jet-qualified), 47 cadets, 476 ground crew, 2,417 non-commissioned officers and airmen, and 501 administrative employees.

In a political move to satisfy its anti-communist ally in the region, United States granted the supply of 52 North American F-86F-25 and -30 aircraft on July 1959, under the Military Assistance Program (MAP) contract from the USAF stockpile in Europe.

The F-86F-25s had been withdrawn from the USAFE 36th FBW at Bitburg, and the F-86F-30s from the 50th FBW at Hahn, West Germany, in 1956 and had been put in storage at Chateauroux Air Base in France since then.

The selected airframes, under USAFE-AFE Project 3F-220, went through an overhaul program in various European facilities, including the FIAT aviation plant in Turin, Italy, and CASA Gatafe-plant in Spain.

Overhaul records of one such aircraft (52-4724) flown by H. O. Malone, USAF, clearly indicates its final recipient as the Iranian Air Force.

The overhaul on some of the aircraft included the installation of new engine, retrofit of the wing to 6-3 "Hard Wing" standard, re-wiring, new landing gear and tires, installation of new machine guns, new canopies and refurbished cockpit avionics.

The entire program including the post overhaul flight tests took four and half months.

In IIAF Service

From 14 April 1960 (24 Farvardin 1339) on, the Sabres were ferried into Iran by Iranian pilots in three batches; 20 by 9/1960, 6 by 12/1960, and anotehr 26 by 6/1961, through Brindisi, Italy, with a refueling stop at Incirlic air base, Turkey.

Upon their arrival in Iran, new serials were allocated in the range of 3-101 to 3-152.

The delivery was completed by May 1962. In total four tactical fighter-bomber squadrons, each with 13 aircraft, were formed with the type.

The Sabres quickly replaced the F-84G Thunderjets in the 101st Tactical Fighter Squadron at Mehrabad, as well as the 103rd Tactical Fighter Squadron, which moved to Vahdati Air Base when the F-86Fs arrived.

Two further squadrons were also re-equipped; the 102nd FBS, previously flying T-6 trainers at Ghaleh-Morghi, moved to Mehrabad with F-86Fs, and the 104th Fighter Bomber Squadron, an F-47 Thunderbolt unit, converted to Sabres at Vahdati.

This complete re-equipping with Sabres was completed in August 1961, with the F-84s and Thunderbolts being scrapped at the same time.

At Mehrabad, the 101st and 102nd TFS's, along with the 101st Tactical Reconnaissance Squadron, flying nine RT-33As, formed the 1st Tactical Fighter Wing, Commanded by Col. Ali Asghar Raffat.

The other two squadrons, 201st and 202nd TFS's, established at Tactical Fighter Base-2, Vahdati, near Dezful, (later designated TFB-4), came under the 2nd TFW, with Brigadier General M. Naimi-Rad at its head.

(Note: In IIAF service squadron's first digit represent the unit's base, i.e. TFS 201 is based at TFB-2).

By 1966 all remaining F-86s were transferred to Vahdati (still designated TFB-2), and formed four tactical fighter squadrons, 201st, 202nd, 203rd, 204th TFS's.

A detachment of four F-86Fs remained at Mehrabad to provide defense of the base during the conversion process, and also continued to give interception practice for the radar controllers. The detachment returned to Vahdati in December 1965.

The British Military Attache order of battle report of 1966 indicates serviceable F-86F quantities as follow:

201st TFS: 10 aircraft available with 5 serviceable

202nd TFS: 10 aircraft available with 7 serviceable

203rd TFS: 9 aircraft available with 5 serviceable

204th TFS: 9 aircraft available with 5 serviceable

When Vahdati air force base designation was changed to TFB-4, the two remaining F-86F squadrons became 401st and 402nd TFS's. The other two were transferred to the new Shahrokhi TFB-3 forming the 301st and 302nd TFS's.

The IIAF squadron designation was later changed to two digit with the "0" removed, thus the last two squadrons which operated the F-86F were the 41st and 42nd TFS at Vahdati.

The 42nd TFS commander was Major Hossain Malki, with Capt. Shivaee as operating officer and 2nd Lt. Keyvan Nourhaghighi in charge of ground and flight safety.

The base commander was Major Khamenei with Major Anvar as deputy commander and Capt. Talebdoost in charge of flight safety,

From 1961, the IIAF concentrated on getting operational with the F-86F squadrons. Formation flying, gunnery, rocket firing and dropping napalm were all practiced rountinely, not only for border defense, but also as a show of force to those bent on subversion within Iran.

To reinforce the message, regular firepower demonstrations were carried out, and on 20th September 1961, a large number of F-86Fs, led by Gen. M. A. Khatami, the IIAF commander, put on one such show at Vahdati to mark the Iranian Air Force Week.

The demonstration showed Sabres completing rocket attack, dive and low-level bombing from altitudes ranging from 500 to 1,000 feet. Spectators watched in awe from just 400 yards away as further Sabres carried out napalm bombing.

By this time, a number of IIAF Sabres had already been fitted with Sidewinder missile launch rails through T.O.1F-86F-533 modification, however, the AIM-9B missiles were not delivered until almost a year after the entire fleet has been retrofitted.

As evidence of the long delay in delivery of the Sidewinders, in the photo below, Capt. Ahmad Ghiravian, posed on a 204th squadron (later 42nd TFS) F-86F-25, at Vahdati air base with an empty Sidewinder launch rail.

But at first, the effectiveness of the IIAF Sabre units was questioned by the British Embassy's Air Attache. He cited the lack of fighter interception exercises and the inability of IIAF pilots to te atco-ordinate their missions with the ground radar si Doshan-Tappeh AFB as the prime cause for deficiencies.

In joint exercises, RAF Canberra bombers often had to operate as low as 35,000 feet because the IIAF Sabre crews complained that the radar sites could not cover them above that altitude. Exasperated, the USAF colonel in charge of the MAP mission took a flight in an IIAF Sabre safely to 48,000 feet; when the Iranian Sabre pilots flew a subsequent mission unescorted, they complained that they could only reach 42,000 feet.

During 1962, the IIAF sent four F-86Fs to the Congo in support of the United Nation's operations, (complete story in the next issue).

A detachment unit from TFB-1, deployed to Shiraz air base, TFB-7, supported the army operations during the 1965-66 uprising of Ghashghayee tribe.

In the early skirmishes with Iraq over the Arvand-Rud (aka. Shat-el-arab) river natural border disputes, F-86Fs flew CAP (Combat Air patrol) missions in support of the Iranian Navy and pushed back Intruding Iraqi armed vessels from Iranian waters.

Iranian Sabres took part in various tactical exercises, including the famous "Delavar" manouver with a large participation of USAF aircraft including F-100s and F-102s from Vahdati air base, and "Shahbaz" series of CENTO exercises designed to test Iranian and Turkish air defense systems.

The Golden Crown Demonstration team (below), also used six F-86Fs from 1961 to 1967, and 1969 to 1970 (see details in issue #7).

It appears that further F-86 deliveries were slated for the IIAF, but were not taken up, ostensibly due to the imminent arrival of F-5A Freedom Fighters.

By 1965, all remaining F-86 units at TFB-1 and TFB-3 had already started to convert to F-5As.

By the time the worn out Sabres were ready to retire, all remaining F-86F's were transferred to 41st & 42nd Squadrons based at the 4th Tactical Air Force Base at Vahdati.

By August 1970, the 42nd TFS under the command of Maj. Maleki was still operating the sole F-86F unit along with T-33 trainers.

With an increasing amount of man hours required to keep the F-86s in the air, costly maintenance and constant need for spare parts, the fleet had reached an unacceptable level of effectiveness and economical value.

Thus, an order to retire the Sabres from IIAF service was issued and on March 4th 1971, the last F-86F was withdrawn from the IIAF service.

According to unconfirmed reports, United States transferred 24 of the Iranian airworthy F-86Fs to the Ethiopian air force during the 1966-70 period.

The remaining 16, including 12 airworthy airframes were returned to the United States under the MAP agreement. The other 4, which were grounded due to technical problems, were disassembled and shipped by an USAF C-141 cargo transport to an undisclosed NATO air base in West Germany, perhaps to be used for spare parts.

The following chart, combined from reports by U.S. and British Military Attache in Iran, represents the IIAF F-86 fleet strength during its service span.

06/30/1960 - 9 aircraft (9 available)
09/30/1960 - 24 aircraft (24 available)
12/31/1960 - 26 aircraft (25 available)
06/30/1961 - 48 aircraft (46 available)
09/30/1961 - 52 aircraft (51 available)
06/30/1962 - 50 aircraft (50 available)
12/31/1962 - 48 aircraft (44 available)
06/30/1963 - 46 aircraft (42 available)
06/30/1964 - 45 aircraft (40 available)
09/30/1964 - 43 aircraft (38 available)
06/30/1965 - 44 aircraft (39 available)
08/30/1966 - 22 aircraft (20 available)
04/30/1967 - 20 aircraft (20 available)
06/30/1968 - 20 aircraft (19 available)
12/31/1969 - 19 aircraft (18 available)
08/30/1970 - 13 aircraft (13 available)
09/30/1971 - 5 aircraft (Non Flyable - On display)

Accidents:

In total, the IIAF lost eight F-86s, three of which ended with successful ejection of the pilot, and one aircraft was destroyed by fire during routine maintenance at Vahdati AFB.

The Golden Crown Demonstration team had its own accidents with the F-86.

Aside from the fatal mid air collision of two F-86s due to pilot error during a pre-show practice, and two other crashes, one due to bird strike with a successful ejection and another one due to engine fire and failed ejection (see details in issue #7), another one made a safe landing with minimal damage to the aircraft, when all three wheels of the landing gears failed to open (below).

The Training:

Taking the F-86 into service was a big step forward for the IIAF.

In preparation for the arrival of Sabres, twenty-five F-84G veteran pilots, underwent training in United States.

The first phase of the training was 7 weeks of advanced English language schooling at Lackland AFB near San Antonio, Texas.

After completion, twelve pilots started their flight training with the 4510th Combat Crew Training

Wing, at Luke AFB, Arizona, and the rest of thirteen pilots with the 4520th Combat Crew Training Wing at Nellis AFB, Nevada., completing their courses in 1961.

A further sixty-two officers and one hundred airmen completed ground-based maintenance training during this period.

This was an intensified program, followed by Technical Training, which included lessons in hydraulics, airframe repair, engines, etc.

Upon returning to Iran the pilot training graduates would become instructors in the IIAF.

First, they would complete a quick refresher course on the F-86 with the assistance of USAF instructors stationed in Iran. Then as instructors they would begin to check out the squadron's pilots, staff officers and ground personnel.

Extended pilot training later continued at the IIAF Flight Training School, Doshan-Tappeh air base east of Tehran.

For such training, a large number of US military personnel were backing the MAP effort in Iran. They were the first to fly the aircraft before going on to qualify the IIAF pilots.

After the basic flying phase was completed, a typical IIAF fighter pilot would have received about forty hours of flight experience in the F-86, and around one hundred fifteen hours of classroom instruction.

There were also approximately fifty hours devoted to 'one on one' briefings and performance evaluations by the USAF instructors. Flight evaluation included training in formation flying, instrument flying, air-to-air gunnery, air-to-ground gunnery, air combat maneuvers and tactics.

During the early 'Sixties, an RAF detachment of around seven officers and thirteen airmen also provided fighter control and radar defense training.

At the time, the IIAF was in process of developing a network of British-supplied mobile air defence radars, which would operate in conjunction of F-86-equipped fighter interceptor units.

Although the -25 and -30 blocks of F-86F were already wired to carry the first generation of Sidewinder air-to-air missile, the AIM-9B, no missile was included in the F-86 contract.

At the beginning, Shah rejected the F-86 offer based on the fact that the aircraft would have no air defense value without the Sidewinder missiles, but the U.S. government assured the Shah that the missiles will be provided later pending the IIAF progress in training and deployment capabilities of the new aircraft.

On December 12, 1962, almost a year after the declaration of all F-86 units as operational and combat ready, the first batch of 114 Sidewinder missiles arrived at Mehrabad by USAF C-133 aircraft, thus, the F-86 became the first Iranian fighter armed with air-to-air missiles.

The first live air-to-air missile firing was recorded on May 15, 1963 from F-86F 3-126, with a direct hit against a Beech drone flying at 9,450 ft altitude from a distance of 1.2 miles at the Kushk-e-Nosrat weapon range, some 37 miles southwest of Tehran.

The missile training was also conducted against a target dart towed by a T-33, or HVAR rockets fired from another F-86 about a mile behind the missile-armed F-86.

During training in the United States there were mishaps...On 3rd August 1961, Cadet Nosratollah Abdullahi-Fard took off from Luke AFB, Arizona, as No. 3 (radio call sign "Soldier 3") in a four-ship flight on a low-angle strafing and skip-bombing practice mission.

He was flying USAF F-86F s/n 52-4609 and he and the other three Sabres flew over to the gunnery range as briefed. After completing the skip-bombing portion of the mission, and on his fifth firing pass, he began his climb out. Suddenly he heard something strike his canopy, followed by a loud explosion. His F-86F began to shudder and roll violently. Following emergency procedures, Abdullahi-Fard quickly raised the ejection seat handles and lowered his head, but still the canopy struck his head as it left the aircraft. This caused him a slight delay in locating the ejection seat triggers that fired the seat. He ejected successfully and had a normal parachute deployment sequence. His aircraft crashed and exploded approximately 2 ½ miles from where Addullahi-Fard landed safely.

Another accident took place on Friday the 13th July 1962, after Lt. Mossa Mirzaian took to the air in USAF F-86F s/n 52-5385. 2nd Lt. Mirzaian was the wingman to the leader in a four-ship formation headed to the Luke AFB Gunnery Complex for air-to-air firing practice with a towed target.

Using the radio call sign 'Slowpoke', the flight entered the gunnery pattern over the range and the first pass on the tow-target went as planned. Joining up in trail formation and stacking themselves in a 'perch position', they awaited the tow aircraft to complete its turn-around. As the tow aircraft

approached, the flight leader turned his Sabre into the target and began his firing pass, at which point 'Slowpoke Two', flown by Lt. Mizraian reported that he had switched his F-86 over to the emergency fuel system. The flight leader radioed back to ask him why he was in the emergency system. Lt. Mirzaian responded; "…because I am losing rpm rapidly." His flight leader then advised him to hold his power at approximately 90% and to take up a flight heading toward nearby Gila Bend.

As Mirzaian turned and headed there, he began a slight descent from 20,000 ft. at about 220 knots. Seconds later, the IIAF student reported that both of the Sabre's fire-warning lights were glowing red, his control stick was shaking violently, and was experiencing severe vibration. Two minutes later, his flight leader had caught up to him and was flying off of Mirzaian's wing. The flight leader thought that he noticed 'blackening and melting of the top fuselage in the area forward of the turbine wheel stripe.' He then instructed his Iranian student to 'lower his head, jettison the canopy, and eject.' At first, Lt. Mirzaian hesitated until 'Slowpoke 4' (a fellow Iranian student), radioed and told him to eject in his native language. Mirzaian then ejected from his crippled Sabre at approximately 15,000 ft., and descended to the ground with a good parachute.

This official account can be compared to later incident, described by USAF Instructor George Getchell, who helped train IIAF Sabre pilots: "The Iranians had two F-86F accidents, within a week of each other. Both were engine explosions just after take-off which any pilot knows is the worst possible time. Fortunately, in each case the pilots ejected safely and survived with minor injuries. I was on the accident investigation team and remember hearing the control tower tape from the first accident.

The Iranian pilot was number two of a four ship flight. He was taking off in-formation on his Lead's wing. Just after takeoff he called the lead on tower frequency and said; "…Lead, I got a big noise in cockpit." The lead looked back and saw flames pouring out of the tailpipe and told number two to eject. There was a short delay and the call to eject came again, just as the engine exploded, severing the tail section from the fuselage. At the same time, the pilot ejected about 500 ft above the ground. His chute blossomed just before he hit the ground.

The second accident happened before the cause of the first accident was found. In this case, the accident was at a higher altitude and the pilot immediately recognized the indications of an engine failure - a big red light in the cockpit and calls on the radio telling him he was on fire. He didn't delay his ejection and got out before the engine exploded. Both accidents were caused by turbine wheel failures due to faulty material used in manufacturing. All aircraft were grounded until the suspected turbine wheels were replaced.

Additionally, there were many accidents involving the faulty design of F-86's hydraulic system. In at least four instances Sabres landed with failed nose or main landing gear and with only the skill of pilot preventing the aircraft to be damaged beyond repair.

The Aircraft:

F-86F-25 and F-30 were basically the same aircraft, except that the F-25 was built at Columbus, Ohio (known as F-86F-25NH) and the F-30 at Inglewood, California (known as F-86F-30NA). These were the first fighter-bomber versions of the F-86F.

The F-86F-25 and 30 blocks were fitted to carry two stores under each wing rather than just one in the earlier blocks, addressing a problem inherent in the design from its inception; when bombs were carried on the external pylons, no drop tanks could be fitted, and combat radius was barely 50 miles. Therefore, NAA designers came up with a further underwing pylon attachment, inboard of the existing fixture, which could accommodate a 120-gallon (454.2 liter) combat drop tank or a 1,000-pound bomb. In addition to the 200-gallon (757 liter) drop tank capacity of the outer pylon, if the maximum fuel load of two 200-gallon and two 120-gallon drop tanks was carried, ferry range was increased to 1,600 miles and combat radius was 568 miles.

The F-86F-30 was the first Sabre built to the fighter bomber specification.

To cope with the fighter-bomber role of these aircraft, the flight control system was modified to give improved longitudinal stability, and reduced stick force requirement.

The Alternate Hydraulic System was also redesigned to incorporate one accumulator instead of two. This improvement was installed on the 60th

Inglewood F-86F-30, but did not make it onto the Columbus line until the 457th F-86F-25 rolled off the production line.

The Iranian Sabres were equipped with:

A Sperry AN/APG-30, X-Band Fire Control/Ranging Radar (with 3000 yards/2743 meters range).

A Collins AN/ARC-27 UHF/VHF Command Radio.

A Collins AN/ARC-34 VHF Command Radio.

A Bendix AN/ARN-6 Radio Compass.

An AN/ARN-12 Marker Beacon Receiver (F-86F-25).

An AN/ARN-14 Omni-Directional Receiver.

An AN/ARN-21 TACAN.

An AN/ARN-32 Marker Beacon Receiver (F-86F-30).

A Type A-4 Gunsight.

Maurer P2 Ventral-Podded Gun Camera.

Martin Baker Mk-2C Ejection Seat.

Both -25 and -30 blocks were fitted with so called "6-3 Hard Wing" with 6 inch (15.2 cm) extension at the wing root and 3 inch (7.6 cm) at the wing tip.

All F-86Fs featured the Cleveland AN-W-6 12-fin cast nose wheel and 14-ply tires for nose and main landing gears.

The armament included:

Six Browning M3 0.50 Caliber (12.7mm) machine gun, each fed by a 300-round capacity ammunition box mounted beneath the cockpit with a cyclic rate of fire of over 1200 rounds per minute.

The expanded shell casings were dropped back into a fuselage bin and collected after landing. The guns were charged on the ground before the mission. All six guns were bore-sighted to converge at 1200 feet (365.8 meter). The Bomb load included:

4 x 500 lb (226.8 kg) M43 General Purpose

2 x 750 lb (340.2 kg) M117 General Purpose

2 x 1000 lb (453.6 kg) M64A1 General Purpose

2 x 750 lb Napalm

2 x LAU-32A Pods each with 7 x 70mm Unguided Rockets

16 x 12" HVAR (High Velocity Aircraft Rocket)

Initially, the Type P-3 helmet with L-2B olive green jacket fitted with life preserver and parachute pack were supplied, but later in 1964 the P4 helmet with flip-up visor and the type A2 leather jacket was supplemented.

Maintenance:

Until the return of Iranian ground crews from the U.S. to take over F-86 maintenance tasks, close to 200 Pakistani mechanics were working for IIAF. Interestingly, the maintenance of the F-86's turned out to be a bit of a problem during the early Sabre years.

Bill Herron, chief of the U.S. maintenance advisory group in Iran commented; "…things were a bit rough at first with the IIAF handling of their own maintenance".

It was our observation, that the trained ground crews returning from the United States, who were supposed to teach the others what they had learned about maintaining the F-86's, were a bit reluctant to train their fellow crewmen.

As to the overall maintenance performed by the Iranians, it was passable but not up to USAF standards. Our job, of course, was to make sure those trained in America were used extensively as instructors when they were available.

Re-equipment with more modern types had been on the Iranian's mind for some time - even since the arrival of the Sabres. The situation was not helped when on a visit to Iran in 1961, Senator Symington had stated that, upon his return to the United States, he would be pressing for IIAF re-equipment with F-105 Thunderchiefs!! This caused some embarrassment, and the head of the US Military Advisory Group in Iran, Maj. Gen Hayden strongly opposed any further aid until the Iranians showed a degree of technical self sufficiency. With this in mind, the Iranians began to look for suitable overhaul facilities for the Sabre fleet.

Initially it was planned to send the F-86Fs to Pakistan since they already had established overhaul facilities. However, the 1965 war with India had made this impossible.

In 1966, Israel Aircraft Industries (IAI) landed the contract for overhauling IIAF F-86Fs at its Tel-Aviv's Lod airport facility. The first two Sabres, void of any visible markings, had been seen at Lod on 26th October 1965, by the British military attache to Israel, Wing Commander Goring-Morris.

On 26th April 1966, another unmarked F-86F was seen at Lod, and a US Embassy colleague confirmed to Goring-Morris that it was an IIAF Sabre awaiting air test after overhaul.

Goring-Morris also reported that there had been numerous sightings of Israeli AF Boeing C-97 Stratocruisers at Mehrabad in 1966.

It seems that the IAI contract, for thirty-five Sabres, was signed in November 1965. Zeev Tavor was one of two Israel Aircraft Industries pilots tasked with test-flying the overhauled Sabres at Lod airport:

"As I recall this operation was not published. The aircraft carried no markings, they only had IAI-assigned numbers. No photos were taken. The aircraft were flown by Iranian pilots to and from Israel, landing on their way in a third state, probably Turkey. They couldn't fly direct because of Arab states on the route with no diplomatic relations with Israel would not allow overfly of Iranians jets.

Except for myself another pilot by the name of Yahalom Nachum, checked out the overhauled F-86Fs in Iran. I flew the first F-86F on 29th November 1966. My last flight was on 13th August 1968. The aircraft number was BK25. I logged a total of 15.45 flight hours on the F-86F. These were the only F-86Fs I flew. I don't remember how many F-86s were involved in this operation, but out of my log book I pulled the aircraft numbers I flew on, they were: BK-3, 4, 5, 6, 7, 11, 12, 13, 14, 16, 17, 18, 19, 25 (" BK " stands for Bedek - IAI code).

I flew a total of 20 flights on 14 aircraft. The aircraft arrived in Israel in pairs and flew back in pairs. The only F-86s that went through IAI were the Iranian ones. The Sabre was a friendly and easy to fly aircraft ".

It would make sense that the Iranians would want to keep their connection with the Jewish state a secret from their Middle Eastern colleagues. This goes some way to explaining the secrecy surrounding IIAF Sabres. One thing is for sure - the US were fully aware of all these developments.

IAI had also trained 30 IIAF engineers to perform the future overhauls in Iran.

Back in Iran, the American ARMISH-MAAG mission was assigned to support the military activities, including the F-86 maintenance crew.

Burton F Rappaport, assigned to the ARMISH-MAAG unit, who also trained IIAF pilots, remembers..."The IIAF required their service personnel to be at least high school graduates who studied and spoke English. They were trained in Iran, at the English language school. If our USAF TA (Table of Authorization) called for 10 hydraulic specialists for 25 fighters, then the IIAF TA allowed for 30 per cent overage to compensate for the difference in skill level. I arrived in Iran right after the June 1967 War. At that time I was told that the IIAF F-86 aircraft were in Israel being overhauled."

Known Serials

TYPE	C/N	USAF S/N	IIAF S/N
F-86F-25	176-109	51-13179	3-118
F-86F-25	176-254	51-13323	3-119
F-86F-25	193-251	52-5520	3-121
F-86F-30	191-639	52-4943	3-129
F-86F-25	176-155	51-13224	3-140
F-86F-25	176-171	51-13240	3-141
F-86F-25	193-216	52-5487	3-148
F-86F-30	191-420	52-4724	3-150
F-86F-30	191-403	52-4707	3-131
F-86F-30	191-422	52-4726	?
F-86F-30	191-425	52-4729	?
F-86F-30	191-346	52-4650	3-115
F-86F-25	176-175	51-13244	3-133
F-86F-25	176-366	51-13435	3-104
F-86F-25	176-245	51-13314	3-102
F-86F-25	176-392	51-13461	3-100(?)
F-86F-25	193-259	52-5528	?
F-86F-25	193-034	52-5305	?
F-86F-25	193-042	52-5313	3-109
F-86F-25	193-123	52-5394	3-111
F-86F-25	193-133	52-5404	?
F-86F-25	193-144	52-5415	?
F-86F-25	193-176	52-5447	3-125
F-86F-30	193-085	52-5356	3-146
F-86F-25	193-130	52-5401	?
F-86F-30	191-685	52-4989	3-138
F-86F-30	191-815	52-5118	3-123
F-86F-30	191-827	52-5130	3-151
F-86F-25	193-023	52-5294	?
F-86F-25	193-080	52-5351	?
F-86F-25	193-087	52-5358	?
F-86F-25	193-119	52-5390	?
F-86F-25	193-126	52-5397	3-103
F-86F-25	193-137	52-5408	3-105
F-86F-25	176-406	51-13475	?
F-86F-25	193-103	52-5374	3-136
F-86F-25	193-167	52-5438	?
F-86F-25	193-165	52-5436	?
F-86F-25	193-189	52-5460	3-139(?)



Iranian F-86Fs were delivered in bare metal with a large roundel on the fuselage. The tail markings consisted of the national flag and the serial in Latin numerals. An additional serials in Farsi numerals was located behind the nose intake. The serials were reversed on the starboard side with Farsi numerals on the tail and Latin numerals on the front nose area. The IIAF title on the aircraft varied considerably. The initial title was a complete I.I. AIR FORCE, USAF style standard during the 1950's with only the U.S. replaced with I.I. (Imperial Iranian). That was changed in 1962 when it was abbreviated to IIAF. However the title was painted in different sizes randomly. The aircraft was painted with a dark olive green anti glare panel in front of the cockpit, including the windshield frame. A red stripe marked the engine turbine area for safety reasons.



By 1965, with the delivery of Northrop F-5A/Bs to IIAF, the entire fleet of F-86s received the 'Asia Manor' three-tone camouflage to be conformal with the rest of the combat units. The camouflage consisted of Tan (FS30400), Dark Brown (FS30140), Dark Green (FS34079) with light gray underside (FS36622).The combination of this camouflage was derived from USAF camouflage used in South East Asia with slight variations in darkness and saturation of colors.

The Avia-Fokker F.IX Transport

Swords into plowshares

[Editor: In 2013, SAFO #136 carried an article on the Fokker F.IXD trimotor bombers in service with the Czechoslovak Air Force. These same aircraft also served as a civilian transports in Czechoslovak. Their story is not only an example of military aircraft put to civilian use, but the photos are a nostalgic look at air travel when it was exciting and a pleasure. Permission to use this material was granted by Jose Feranandez editor of the French magazine, *AirMagazine***.** The translation is by Sandy Schachter.]

In June 1934, the Czech air force took delivery of the last of its F.IX bombers, produced under license by the Avia factory of Cakovice The Ministry of Public Works (MVP = Ministerstvo des Verejnych Praci) would then order two F-IXD transport version of the F.IX - D = Dopravni (transport).

Construction

The Avia F.IXD (see technical characteristics in Annex 1) follows the Fokker original in its conception - a three-engine monoplane with a high wing made entirely of wood, and a fuselage of welded tubes covered in fabric. The landing gear was streamline metal struts with built-in shock absorbers, and were attached to the engine nacelles. The Dunlop brakes provided enough braking power for the two enormous wheels. The plane was equipped with three nine-cylinder radial Walter Pegas II-M2 engines (see Annex 2) with three-bladed Letov Hd propellers, adjustable on the ground.

A comfortable cockpit was located in front of the leading edge of the wing, with excellent visibility in all directions. The pilot, co-pilot, and radioman/ steward formed the three-man crew. With a wingspan of 27.14-meters and a capacity for 17 passengers, the F.IXD was the largest transport plane built in prewar Czechoslovakia. It nearest competitor was the Farman F-62 Goliath with a wingspan of 26.5 meters. (Note 1)

Frantisek Novotny, chief engineer of Avia, was the “father” of all the structural modifications made to the Fokkers produced under license in Czechoslovakia.

First flights

The first F.IX assembled carried the designation F.IXD and the serial number 15. (Note 2) The factory pilots, Kladek and Dalecky, made the maiden flight of this airplane on May 14, 1935. This flight lasted 26 minutes. Kosar joined the crew for further test flights that were made on May 15 and 16.

On the 23rd, the plane was ballasted and flown from Letany to Cakovice, were Kalecky and Kosar continued the tests on May 24 at weights of 450, 320, and 280 kilos. On the 29th, the same crew made the first long-distance flight, Prague-Pardubice-Prague, in 113 minutes.

CSA (Ceskoslovenske Statni Aerolinie Praha (Czech National Airlines of Prague) pilots Brabenec, Malovac, Hranicka, and Seda, among others, began training on the plane in June of 1935. On the 24th of the month, Dalecky and Kosar took the plane to Prague-Kbely airfield for official delivery to a commission of the MVP, the sponsor of the CSA.

The second F.IXD (serial number 16) made its first flight on June 25, 1935, at the hands of Dalecky and Kosar, and about a month later, on July 22, Dalecky brought it to Kbely for delivery to the CSA. The two planes were registered in the course of the year in the Registry of Czech Civilian Airplanes (see Annex 3).

The end of the F.IXD.1

The two F.IXD operated on the routes of the CSA without problems or incidents until September 11, 1937. That morning, F.IXD.1, registered OK-AFF, which served the Bratislava-Brno-Prague route, took off from the Bratislava aerodrome. Shortly after the plane left the ground, a fire that originated in the heating system broke out in the passenger cabin,. The pilot, Selucky, immediately made a 180 degree turn and landed several minutes later on the Bratislava-Vaknory airstrip. Thanks to the aid of radio operator, Rothbauer, all the passengers escaped the flaming airplane unharmed. Since the fire made it impossible for the pilot to escape through the passenger cabin, Selucky had to jump out of the cockpit window. The plane, full of fuel, would burn for three hours and was completely destroyed.

Other transport F.IX

When the Czech F.IX bombers became obsolete in the summer of 1938, the air force would use them only for flight training, long-range navigation exercises, bombing practice, and instrument testing. The Czech air force, being in the process of re-equipment with modern bombers (SB-2 under license) would little by little try to "deliver" their old bombers to civilian transport companies, letting them carry out the conversion to transport planes. The CSA would acquire only one F.IXD bomber (# 12), re-registered as OK-AFH. A second F.IXD (#5) would be confiscated by the Luftwaffe during its conversion by Avia at Kunovice in March 1939.

After the occupation

All the Czech air transport companies were shut down from March 15, 1939, and all the planes belonging to the CSA and the CLS (Ceskoslovenska Letecka Spolecnost = Czechoslovak Air Company) would be gradually taken from the Prague-Ruzyne airport and dispersed to various places around the capital, or to the auxiliary military aerodrome at Milovice. The Luftwaffe also ordered all the hangers at Ruzyne be empted. F.IXD.2 (OK-AFG) was flown to the auxiliary airstrip at Pribyslav, where a group of Czech engineers, under the commanded of the head of the aerodrome Oberst Bittner, carried out regular maintenance of the plane every two months. This group was led by Josef Krestan, then the most senior engineer of the CSA.

One day in the winter of 1941-42, Krestan and a Luftwaffe pilot met at Preibslav, where F.IXD.2 was inspected, prepared for flight, and flown to Prague-Kbley, from where Croatian pilots would take it home with them.(Note 3) In Croatia, F.IXD would probably be attached to the 3rd Squad of the 1st Group of the HRZ (Hrvatsko Ratni Zrakoplavstvo).

Colors and Markings

The Avia F.IXD of the CSA were painted in two colors: the wing, nose, upper part of the cockpit, and the engine cowlings were painted aluminum. The fuselage, tail, and landing gear were black. The registration markings on the fuselage were black with a white outline, and those on the wing were black with a white border. The Avia logo and the inscription "Made in Czechoslovakia" were painted in white on each side of the pilot's cabin, and the inscription CESKOSLOVENSKE STATNI AEROLKINESA, in white, with the logo of the CSA were under the windows of the passenger cabin. The national flag appeared on each side of the vertical tail.

Notes

1. Between 1927 and 1929, eight Goliaths with various engines were built under licence in Czechoslovakia, four by Avia and four by Letov.
2. All Fokkers leaving Avia were numbered in a sequence, no matter what their model.
3. Memoirs of Josef Krestan, published on September 4, 1981.

Annex 1
Principal technical characteristics

Length	19.30 m
Breadth	27.14 m
Height	4.80 m
Wing surface	103 m^2
Empty weight	6750 kg
Take-off weight	9800 kg
Maximum speed	255 km/h
Cruising speed	215 km/h
Maximum altitude	5000 m
Range	800 km
Crew	3
Passengers	17

Annex 2
Walter Pegas II engine
Principal technical characteristics

Year of manufacture	1932
Take-off power	426 kW/580 hp
Propeller speed at take-off	2100 rpm
Cruising power	367 kW/270 hp
Propeller speed at cruise	2000 rpm
Consumption by kW/hp in g/h	367/270
Number of cylinders	9
Engine displacement	28.63 liters
Cylinder bore and stroke	190 x 146 mm
Compression ratio	5.5:1
Weight	485 kg

Annex 3
Production of the Avia F-IXD

Number	Registration	Serial number	Date of entry into the registry	Date of departure from the registry	Operator	Remarks
1	OK-AFF	15	07.08.1935	03.03.1938	MVP-CSA	crashed 11.09.1937
2	OK-AFG	16	22.07.1935	21.04.1939	MVP-CSA	to Croatia ca. 1941/1942
3	OK-AFH	12	21.10.1938	?	MVP-CSA	ex F.IX military
4	---------	5			MVP-CSA	ex F.IX military







The first Avia F.IXD (OK-AFF) number 15 on the Avia airfield at Prague-Cakovice.



The same plane at the factory airfield just after being taken up by the CSA. The national flag has not yet been painted on the vertical tail.



An airport bus and its passengers in front of the OK-AFF at Prague-Kbley aerodrome. Wooden two-bladed Avia propellers can be seen. They would be used for only a short time.



Dr. E. Synek and his wife in front of OK-AFF.



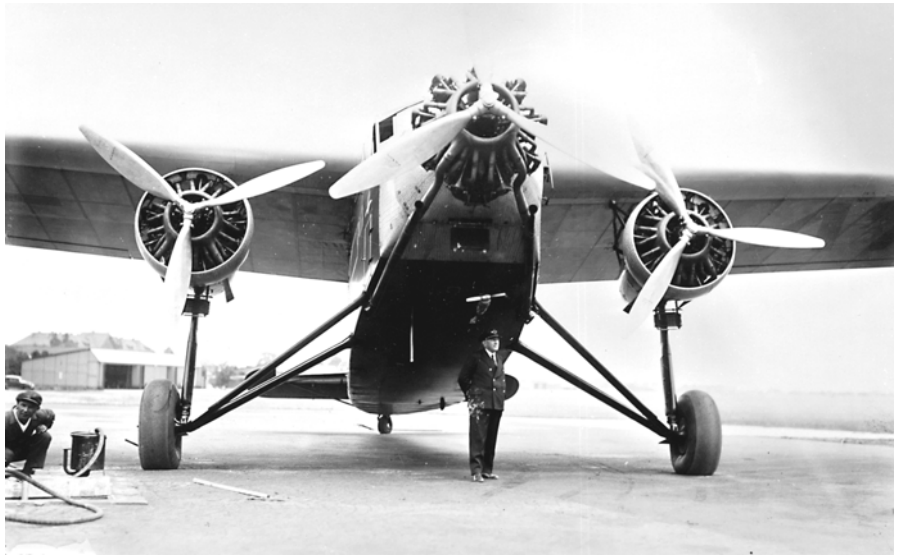
F.IXD in front of the building still under construction at the terminal of the Prague-Ruzyne airport in the summer of 1937.



One side of the second F.IXD (OK-AFG), at the edge of the Avia airfield at Cakovice.



On this photo taken at the new airport of Ruzyne in 1937, one can see on the tarmac DC-2 (registered OK-AIC, 1562), of the CLS, Avia F.VIIb/3m (OK-AFB, number 2) of the CSA, an Avia F.IXD (OK-AFG) of the CSA, as well as a Wibault 283 and a Potez 62 of Air France.



One of the F.IXD in front of hangar #1, at the Prague-Kblety airstrip.



A passenger poses with a crew member in front of the OK-AFG at the Ruzyne airport in 1937. Visible are the control cables, which run from the fuselage on the exterior of the airplane.



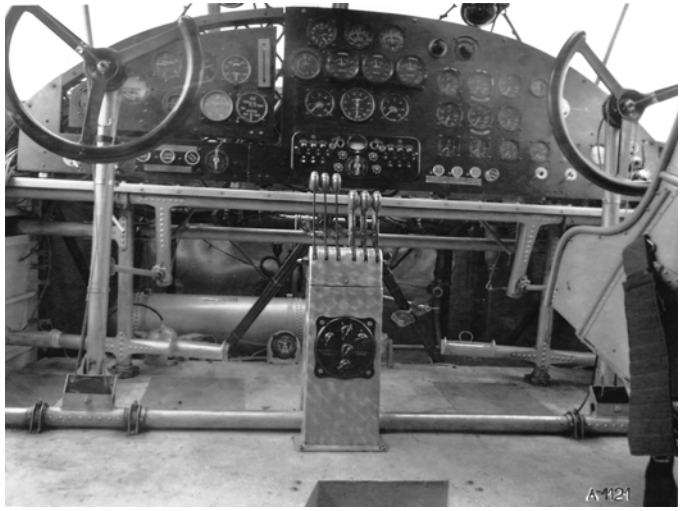
A F.IX at the Prague-Kbley airport. One sees that the airplane flew at times, without engine cowlings.



The nose of F.IXD (OK-AFF) at the Ruzyne airport, before its inaugural flight on the Prague-Vienna route on May 15, 1937.



A ladder was used to access the F.IXD from the tarmac of the Prague-Kbley airport.



The controls of F.IXD registered OK-AFF.



The passengers on the F.IXD enjoyed a comfortable environment for their trip.

Exotic Birds 10

Greg Kozak



Azerbaijan An-12: This is a rather rare image of an An-12 from Azerbaijan. It wears the national flag on its fuselage as an insignia, to the front of its stenciled aircraft number. Note the international aircraft registration prefix for Azerbaijan- 4K. Image from Martin Stepanek, via http://swans0ng.livejournal.com.



Brazil Military Police Koala: The Santa Carinia Military Police of Brazil uses two Agusta Westland AW119 Koala helicopters. The star insignia on the rear door is rather similar to that used on aircraft of the Colombian National Police. Image from www.planepictures.net.



Comoros Cessna 402: Note the insignia on the fin of this Cessna 402 from Comoros. It is the flag of the State of the Comoros under the Ali Soilih Regime, which was in power from January 1976 – September 30, 1978. Yet another example of the close ties between evolving military insignia and countries' political developments. Image from unknown internet source.



Eritrean Astra: This IAI Astra 1125 from Eritrea wears no national insignia, just the title "ERITREAN AIR FORCE" above the cabin windows. Two pilots of that country's armed forces fled the country to Saudi Arabia in this very Astra, which was serving as the presidential jet! Image from http://mereja.com.



Palestinian JetStar: Images of Palestinian aircraft sporting national insignia are relatively rare. This Lockheed JetStar wears two, in the form of the national flag, one on the front fuselage, and one on the fin. It was also, coincidentally, Yasser Arafat's personal aircraft. Image from http://www.aircraftslides.com.



Mongolian Yak-12: This is a very interesting and quite rare image of a Mongolian Yak-12. In addition to the yellow Zoyombo national insignia, very unusual during communist rule, its wears a red cross on the rear fuselage, illustrating its function as a medevac aircraft. Image from http://forum.keypublishing.com.



Tunisian F-86: In 1969, Tunisia received 15 ex-USAF F-86F Sabres. Though now a display piece, this circa-1972 Tunisian F-86 wears authentic colors and insignia, with the exception of the number Y91602 which is absent from the lower fin. Image from unknown internet source.



Tanzania F-7: This excellent view of a Tanzanian F-7 shows to good advantage the standard placement of the current roundel on that air force's aircraft. It also exemplifies adoption of the current vogue for air-superiority gray color schemes. If anybody has a good close-up view of this roundel, please share it! Image from unknown internet source.

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Chile and Portugal Breda Ba.65. 1/72-scale decals. Twinpack. Antarqui Decals, 757 Emory St., #106, Imperial Beach, CA 91932, USA. $10.00.

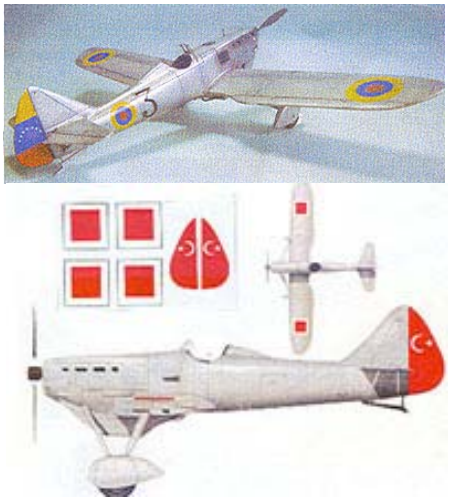
In an effort to make their Twinpacks more attractive to modelers, Antarqui have begun to repackage their older Twinpacks into new Twinpacks pairing one of their older decals with a new decal of the same aircraft but of a difference country.

Antarqui took its Venezuelan Dewotine D.500/Chile Ba-65 Twinpack and divided it into two Twinpacks – one with the old Venezuela D.500 paired with a new decal for a Turkish D.500, and the other with the old Chile Ba-65 paired with a new decal for a Portuguese Ba-65.

The decals for the Chile Ba-65 are for an aircraft without a turret. The measuse 50 mm by 50 mm and contain four national insignia for the wings, the markings for the all-blue vertical stabilizer with white star, and two ‘4” for the fuselage.

The new decals are for a Portugal Ba-65 with a turret . They measure 75 mm by 75 mm and contain six national insignia for the usual wing and fuselage position, two small fin flashes, and four ‘555’ for the fuselage and below the wings.

These decals are available from the SAFCH Sales Service <safo@redshift.com> for $10.00.



Turkey and Venezuela Dewoitine D.500. 1/72-scale decals. Twinpack. Antarqui Decals, 757 Emory St., #106, Imperial Beach, CA 91932, USA. $8.00.

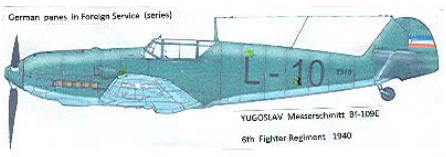
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The decals for the Venezuela D.500 remain unchanged measuring 65 mm by 45 mm, and containing four large roundels for the wings, teo smaller roundels for the fuselage, the complicated flag markings for the rudder, and two “3” for the fuselage.

The new decals for the Turkey D.500 (55 mm by 35 mm) contain four white-outlines red squares national insignia for the wings and the red rudder markings with white crescent and star. This makes into a rather simple color scheme, but a very attractive one.

These decals are available from the SAFCH Sales Service <safo@redshift.com> for $8.00.



Yugoslavia Messerschmitt Bf 109E. 1/72-scale decals. Antarqui Decals, 757 Emory St., #106, Imperial Beach, CA 91932, USA. $5.00.

These decals are for Bf 109E for the Yugoslav 6th Fighter Regiment in 1940. The aircraft is light green over light blue. The color in the above illustration did not reproduce very well, but the background color on the decals looks authentic.

The decal sheet (4 mm by 6 mm) contains every thing needed including four national roundels for the wings, two fin flashed for the rudder, and two ‘L-12’ for the fuselage. (The decals are for ‘L-12’, not “L-10’ as illustrated above.)

These decals are available from the SAFCH Sales Service safo@redshift.com for $5.00.



Mexican McDonnell Douglas MD500E. 1/72 scale decals. Antarqui Decals, 757 Emory St., #106, Imperial Beach, CA 91932, USA. $5.00.

The McDonnell Douglas MD500E helicopter trainers of the Mexican Navy Aviation Flight School are finished in a very attractive yellow. Antarqui’s little decal sheet (55 mm by 35mm) contain two Mexican triangle with ‘anchor’ national insignia and all the inscriptions needed: ‘Armada de Mexico’ for the tail boom, , Escuela de Aviacion Naval’ for the fusslage, and ‘HME 010’ for the vertical fin.

These decals will allow the addition of an attractive tiny helicopter to your collection. They are available from the SAFCH Sales Service for $5.00.

[Editor’s note: I was unaware of any 1/72-scale MD500 kits, so I looked it up on the Internet. I was surprised to find an AZ kit (13 €) that includes decals for six small air forces: Mexican Army, Argentina, Philippines, Chile, Italy, & El Salvador.]

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Les As de l'Aviation Israelienne de 1948 a 1985, by Shlomo Aloni. Hors-Serie Avions #44. 96 A-4 pages. 150 photos. Lela Presse. contact@avions-bateaux.com. € 17.50.

I approached reviewing this book with extreme trepidation. I found my limited knowledge of the French language, learned in Middle School during the 1940s, an impediment to extracting information from this book.

For example, it took me a long time to reconcile the "victory" totals listed in the appendix to the table of five "victories" listed for each ace in the body of the text. (The appendix list 43 aces with "victory" totals ranging from 17 for Giora Epstein to five for 16 pilots.) I finally realized that the appendix listed the total number of "victories" while the tables listed only the first five victories.

Adding to my difficulties was the peculiar format of the text – no chapter heading to guide the reader through the intricacies of the text. Also greatly missed is an "Index" listing the the page(s) of the text on which the pilot's victories are described.

To further add to my confusion, the aircraft are identified by their Israeli name: *Baz* F-15; *Kunass* F-4; *Nesher* Mirage 5; *Netz* F-16; *Shahak* Mirage III

On the plus side, there is a map showing the location of Israeli and Arab air bases.

As the title indicates this is a book about Israeli Aces – not Israeli Aces and their Aircraft. As such, most of the 150 photos are of pilots, and only a few are of full views of their aircraft: Miarge III (3); F-4 (3); Mirage 5 (4); F-16 (2); & F-15 (9).

This book will be of minimal interest to modelers because of the lack of color profiles and the limited number of photos of aircraft. However, some modelers may find the close-up photos of "victory" markings useful, and the serious student of Israeli aviation will find it indispensable. The review copy is available from the SAFCH Sales Service safo@redshift.com for $17.50 plus postage.

The 5 victories that made Giora Epstein an Ace

Date	Squadron	Avion	Victime	Arament	Notes
6 juin 1967	101	Shahak 56	Su-7 égyptien	canon	crash vu
20 juillet 1969	101	Shahak 82	MiG-17 égyptien	canon	crash vu
11 septembre 1969	101	Shahak 59	Su-7 égyptien	canon	crash vu
25 mars 1970	101	Shahak 77	MiG-21 égyptien	canon	Explosion vue
25 mars 1970	101	Shahak 77	MiG-21 égyptien	canon	crash vu

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"There is a small correction in my MiG-17 review (SAFO #169). My fault. Toward the end, RIO is defined as "Radar Intercept Officer." This is incorrect. It should be "Radar Interception Officer." I never made that mistake before."
Peter Mersky (#1355), USA.

"Re #160: Rudolf Hoefling's continuing story of the Fiat CR.20 makes me wonder why there isn't a large-scale mainstream model available given the variety of markings carried. Praise must also go to Frits Gerdessen for the LVA photo spread, especially when you realise how few LVA shots occur in the general aviation press. More please Frits! I can't agree more with Dan Hagedorn's review of *Axis Aircraft in Latin America*. It really is an interesting account of what is an unknown subject here in Europe."
Malcolm Barratt (#1715), UK.

"Regarding the review of the Curtiss Hawk II decals in SAFO #160: The Monogram Kit represents the US Navy Curtiss F11C-2 fighter. The main differences from the Hawk II is that there is no tail hook and the tail wheel is replaced by a skid. A kit more fitting for modeling is the Curtiss Hawk II by RS Model. This kit comes in several versions. - Colombian, Peruvian, Chinese, Thai, Cuban, and even German."
Christian Hotte (#902), France.







First trial of the AIM-98 Sidewinder in Iran on F-86F-30 3-123 (52-5118). Note the no-slot 6-3 Hard Wing and 200 gallon auxiliary tanks. (Iranian Aviation Review)





The F-86 had a problematic hydraulic system, causing many gear-up landings, such as this camouflaged F-86F-30 3-140 landing at TBF-4 Vahdati with a failed nose landing gear. (Amnaite-Parvaz)



Two “big wheels” of a F.IXD.